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IN an article by Mr. EUGENE H. COWLES, in the ENGINEERING AND MINING JOURNAL of July 11, on the "Physical properties of some of the alloys of manganese, copper and aluminum," the author was made to say, in speaking of "silver bronze," "its electrical conductivity has not yet been determined, but what tests have been made upon it show the same to be higher than German silver," when of course the author intended to say that its conductivity was lower. Our attention has just been called to the error, which we make haste to correct.

THE affairs of the San Jacinto Estate, Limited, do not appear to be progressing satisfactorily, if we may judge from the fact that the directors have recently found it necessary to make a change in the management of the mines. Up to this time, the company has been developing the Temescal mines, and also improving its agricultural land; a considerable area of the latter has been cleared and planted, fruit trees have been set out, and plans formulated for letting it in small holdings. The Gavilan gold mines, also belonging to the company, were leased at a good royalty some time ago, and are now being developed by the lessees. According to the new policy of the company, work has been suspended on all parts of the estate with the exception of the Temescal mines. It is to be regretted that there should be any friction in the management of this company, which owns what is certainly the most promising tin mine in this country; but, as we have already pointed out, the change in policy has no effect upon the development of that, which is still actively going on, some of our contemporaries to the contrary notwithstanding.

LUCK IN MINING.

The element of chance plays an important part in mining, though perhaps no more so than in other branches of business, and many of the greatest ore deposits that the world has known have owed their discovery to what may be called pure luck. The uncovering of the famous bonanza at Mount Morgan, in Queensland, Australia, was an instance of this, as appears from a recent report of the manager of the Mount Morgan Gold Mining Company, Limited, who says, in describing the work done on the property during the past half year: "We have developed one curious fact in the history of Mount Morgan. Hundreds of people have wondered, 'how could Mount Morgan, only 26 miles from Rockhampton, remain undiscovered so many years, especially as Linda Gully at its foot was worked for gold many years ago?' Our recent working on Lady Musgrave face has taken in the original prospecting trench sunk by the Morgan Brothers, and, strange but true—call it judgment, fate, or luck—had this trench been put in 10 ft. north or south, they would not have found any gold without sinking 20 ft. The trench is just in the center of the only payable stone that comes to the surface in this part of the mountain. Ten feet north or south would have proved a duffer, and Mount Morgan, out of which the company has taken 844,374 ounces of gold, would possibly still be undiscovered and still known as the Iron Mountain."

Similar cases can be cited in this country without number. The discovery of the Little Pittsburg mine in Leadville, Colo., was made indeed under circumstances almost identical with those at Mount Morgan. Ore had been found on Iron Hill, but with the knowledge of the geology of the place possessed by prospectors at that time there was no reason to look for the vein on Fryer Hill, more than a mile distant from the original discovery, where there was no float, outcrop, or other surface indications. A party of prospectors, however, working on a "grub-stake," set out to sink a shaft on this hill. Half way up the hill they stopped, as the story goes, to refresh themselves from the jug of whisky which they had with them. Seduced by the charms of this fluid they remained on the spot until the supply was exhausted, when one of the number suggested that they might as well sink a shaft at the spot where they were as anywhere else on the hill. This proposition was acted upon, with the result that ore was struck after sinking a few feet. Curiously, this was the place where the vein underlying Fryer Hill came nearest to the surface.

A more recent instance of luck of this kind was reported only a few weeks ago. The famous ore body in the Poorman mine, Owyhee County, Idaho, from which many millions were taken, was followed downward by the discovery shaft until it could no longer be commanded by the latter. A new shaft was then sunk, but the workings from this failed to cut the ore chute and it was supposed that it did not extend downward. After many years the continuation of the chute has been discovered, and it turns out, according to the report, that the second shaft was stopped within 4 ft. of it. We are not, however, convinced of the accuracy of this statement, and would need much more abundant and precise details to make it fit our recollections of the costly and extensive explorations made in the Poorman mine before its abandonment.

INSPECTION AND INSURANCE OF BUILDINGS AGAINST COLLAPSE.

One of the many lessons to be learned from the recent Park Place disaster in New York, is that buildings should be insured against collapse, whether caused by explosions or not, as well as against fire. We have insurance companies for nearly every kind of accident to which either life or property is liable. Thus we have life, fire, accident, marine, live stock, plate glass, steam boiler and employers' liability insurance companies. There is no reason in the nature of things why we should not have insurance companies which would insure buildings against collapse as well as against every other kind of accident. The premium necessary to cover insurance against such a collapse as that in Park Place would be exceedingly small, since such accidents are very rare.

Another lesson we have learned from the disaster is the impossibility of any municipal board of inspectors making a thorough inspection of buildings while they are occupied. Such inspection can be much better done by the insurance companies whose interests are involved in them, than by any disinterested official inspector. A steam boiler, except one of the safety type, is a notoriously dangerous piece of apparatus, yet there are insurance companies which will undertake to inspect the material of which a new boiler is to be made, to inspect and test the boiler at the shop where it is manufactured, to inspect it periodically during its use, and to write a policy insuring not only the boiler itself, but the property in its vicinity, whether belonging to the owner of the

boiler or to his neighbors, as well as the lives of any persons who may be killed or injured by its explosion.

The builder of an ocean vessel can apply to Lloyds' or to the American Ship Masters' Association, which will furnish rules as to the sizes and quality of the materials to be used in its construction, will inspect this material and the vessel while building, and will give it a rating upon which is based the premium for marine insurance of vessel and cargo.

So, in like manner, could an inspection and insurance company furnish rules for the construction of buildings, and supply inspectors to see that these rules were carried out; and on the reports of such inspection it could give ratings to the buildings, upon which ratings should be based the premium against fire, collapse, or other disaster. The company's inspectors would make periodical inspection of the buildings, to see that rules as to overloading of floors and as to the use of heavy vibrating machinery were not violated.

The necessity for inspection and insurance of buildings against collapse is becoming more apparent with the increase of tall office buildings, constructed of steel columns and girders. In buildings of this kind, it is now becoming customary for the architect to take the advice of expert engineers upon the design of the steel frame-work, and to employ inspecting companies or firms, of which there are several in the country, to inspect the manufacture of the steel at the mill and at the shop where it is shaped and prepared for riveting together. Such practice should become universal, like the inspection of steel vessels and steam boilers.

It would be an easy matter for our fire insurance companies to add to their insurance policies a clause covering risks of collapse, and to employ inspectors to inspect systematically during construction such buildings as they insure. The cost of this work would add but a trifle to the insurance premium and would be gladly paid by the owner.

ENGLAND'S COAL SUPPLY.

That time-honored subject of discussion, the duration of England's coal supply, has been brought into prominence recently by two papers read before the sections of Economic Science and Geology of the British Association at the meeting of that body at Cardiff, Wales, last month. One of these, on "The Present Coal Resources of England," was by Mr. T. FORSTER BROWN, M. Inst. C. E., who takes a pessimistic view of the situation. The other, more optimistic, was an account by Prof. BOYD-DAWKINS of the discovery of new coal fields in southeastern England. The second paper naturally served as an antidote for the first, which, although it has excited general attention on the part of the British technical press, has not apparently caused serious alarm.

Mr. BROWN is of the opinion that England will now pass through three phases in its coal production. There will be at first a gradual increase of output, but at a gradually diminishing rate of increase, until nearly the whole of the coal lands has been leased and occupied. This step will be followed by a more or less stationary condition for a considerable period; to be followed, finally, as the thick and easily worked coal is exhausted, by a gradually diminishing annual output. He estimates the total original resources of the thickest and most cheaply worked seams, existing down to a depth of 2,000 ft., at approximately 20,000,000,000 tons, of which about one-fifth has already been worked. The present annual production of coal in England is about 182,000,000 tons and is steadily increasing. The duration of the present coal resources of the country is, of course, contingent upon the future rate of output. Assuming 250,000,000 tons per year as the average for the next 50 years, Mr. BROWN estimates that 12,000,000,000 tons, out of a total of 16,000,000,000 tons at present remaining unworked, at a moderate depth, in the best and thickest seams, will have been mined by 1941. Before that time, however, the cost of producing coal will have materially increased; and before the whole of the present resources can be worked this increase will probably nearly double the cost at which coal can now be produced at minimum wages. This increased cost will for a time be neutralized by reductions in the rate of wages, the prices of supplies and materials, royalties, and other charges; but it will ultimately result in an inability to keep the cost of production at the previous low limits.

Mr. BROWN then calls attention to the calamity which will follow the exhaustion of England's coal resources, unless some provision is made to meet it. The capital value of the houses and lands of England, its mines, quarries, iron works, etc., exclusive of the value of railways, gas and water works, docks, foreign and colonial securities, income of trades and professions, and other classes is estimated at £5,485,000,000. The present value of railways, gas and water works, docks, tramways, etc., is, in round numbers, £1,350,000,000. In addition, the national debt amounts to £689,000,000. The capital invested in industrial undertakings will, according to Mr. BROWN, take care of itself, but the capital for the redemption of which no provision has been made stands on an entirely different footing, and the neglect to provide for this means the gradual accumulation of a weight around the neck of the nation which must down it when its commerce begins to fail by reason of the exhaustion of the most valuable part of its coal resources.

Mr. BROWN is not, however, merely a prophet of evil. He suggests a remedy which is certainly novel. To prevent the disaster which he depicts, he proposes that the nation shall purchase within the next 50 years all the railways, docks, gas and water works, and pay off the national debt. When relieved of these burdens it can pay a high price for coal and still compete with other nations in the markets of the world. This proposition is decidedly sensational and in our opinion entirely chimerical. Mr. BROWN apparently does not realize what the public debt of England is, nor what are the economic relations between the railways and the people. By far the greater proportion of the national debt of England is due in that country, and its railways, docks, gas and water works are also owned chiefly at home. If this were not the case, and if it were feasible to discharge these obligations in the manner which he suggests, which we are inclined to think will not receive the indorsement of financiers, the English people might be relieved of these burdens, eventually. But under the actual circumstances, money would simply be transferred from one pocket to another, and it is difficult to see how the nation would be benefited by such a transaction.

Whether Mr. BROWN'S estimates concerning the duration of England's present coal supply are correct or not, is an open question. The fears which he has expressed have been shared by many, and that some day or other they will be realized, there is, of course, no doubt. There are wide discrepancies in the estimates of various geologists concerning the amount of England's coal resources, and it is upon the determination of this element that the whole question hinges.

Prof. BOYD-DAWKINS' paper on the discovery of coal in southeastern England is of more immediate importance. As long ago as 1826 BUCKLAND and CONYBEARE recognized the possibility that the Continental coal fields, extending from Düsseldorf on the Rhine to Liége and Charleroi in Belgium, into northern France, might continue under the Strait of Dover to the fields of South Wales. About five years ago, Prof. DAWKINS, not discouraged by the fact that in 1872 a bore hole had been put down at Netherfield, near Battle, in Sussex, to a depth of 1,904 ft. without reaching the carboniferous strata, persuaded the directors of the Southeastern Railway Company to sink a hole at Dover for the purpose of further testing this theory. The drill reached the coal measures, last year, at a depth of about 1,000 ft. and a seam of coal was cut at 1,140 ft. In the next 300 ft., five other seams of coal were penetrated, their total thickness being 10 ft., and the prospect of discovering more and thicker seams below these is considered promising, reasoning from the analogy between these measures and those on the other side of the Channel. Preparations are now being made to sink a shaft at Dover to further exploit the new field and great expectations of the results are entertained. The discovery is certainly one of great importance, and has done much to neutralize the effect of Mr. BROWN'S gloomy predictions. Prof. BOYD-DAWKINS concluded his paper in the following enthusiastic manner:

"It is not improbable that the southeastern coal field will be worked in the immediate future, and that centers of industry similar to Liège and Cardiff will spring up in time in the secluded region of Kent. The iron fields of the Wealden area were largely worked down to the days of Elizabeth, until the fuel necessary for smelting the ore was almost exhausted, and the ironmasters were compelled to transplant their industry elsewhere, and more especially to North Wales. It would be a singular and not impossible revolution of the wheel of time if again the lost industry should be restored to southeastern England through the discovery of the coal measures which lie buried under the North Downs. Whether, however, this happens or not, the discovery of the southeastern coal field will lead to the discovery of other fields which are concealed by the newer rocks in England, and will postpone the evil day when our coal will become exhausted, and when the industries depending upon it will depart to new regions. It is likely to upset all the calculations of the duration of our coal fields which have excited so much attention."

BOOKS RECEIVED.

[In sending books for notice, will publishers, for their own sake and that of book buyers, give the retail price?—These notices do not supersede review in another page of the Journal.]

A Course of Experiments in Physical Measurement. In four parts. Parts I., II., and III., Density, Heat, Light, Sound, Dynamics, Magnetism, and Electricity. With notes and tables for the use of students. By Harold Whiting, Ph. D., formerly Instructor in Physics at Harvard University. Illustrated, 900 and XXXIII pages. Published by D, C. Heath & Co., Boston, 1891. Price $3.

Annual Report of the Geological Survey of Arkansas for 1890. Volume I, Manganese: Its Uses, Ores and Deposits. By R. A. Penrose, Jr,, Ph, D. John C. Branner, Ph. D., State Geologist. Illustrated, 642 pages. Little Rock, 1891. Price, $2.00.

Geological Survey of New Jersey. Annual Report of the State Geologist for the Year 1890. Illustrated, 305 pages. Trenton, N, J,, 1891.

How to Make Money out of Inventions. An adviser for patentees. By August Schemmel. 139 pages. Published by C. A. Rohde Co., Milwaukee, Wis., 1891. Price 50 cents.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

The Manufacture of Basic Steel.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: The St. Louis *Globe-Democrat* notes the completion of a plant in St. Louis for making basic steel, which differs from Bessemer steel in being an alkaline product, while Bessemer steel is an acid product. Whether the editor has tested these two varieties of metal with litmus and turmeric papers or not, is not stated. He further informs us that the furnace used in the Bessemer process is an open-hearth reverberatory, lined with sand silica. Further, that the percentage of silicon which the iron carries, can be controlled easily in the blasting furnace.

These important points in metallurgical advance will be welcomed by the profession at large. The opportunity of learning about sand silica, about the operations of the blasting furnace, and about the Bessemer process as carried out in the open-hearth reverberatory—perhaps blasted furnace—is too great to be wasted.

ZEN BRINUS LYON.

NEW YORK, Sept. 7.

FREE COINAGE FALLACIES.

Written for the Engineering and Mining Journal by J. Howard Cowperthwait.

The assumption of the free-coinage advocates that the more money there is in circulation the higher must be the average of prices and the better must be general business appears to be based upon the notions that the Government has the power to increase the circulation *per capita* without forcing a premium on gold, and that prices necessarily move up and down with the volume of money. In confirmation of their theories, too, the silver men call attention to the so-called "demonetization" act of 1873 and to the universal decline in prices which has been going on ever since. The discovery of two or more connected phenomena is so suggestive of cause and effect that when "demonetization" is pointed out as the cause of the decline in the price of silver, and when this "demonetization" and this decline are pointed out as the cause of the general decline in the price of commodities, many persons are ready to believe, although there is no better reason for attributing the lowering of prices in general to the lowering of the price of silver than there is for attributing the lowering of the price of silver to the lowering of other prices; and although it is difficult to see how an act of the United States which merely stopped the coining of silver dollars accidentally or fraudulently or because the people would not carry them, could have caused a decline in the world's price of silver to the extent of about 30% and covering a period of 18 years.

While it is clear that silver and commodities, on the average, have declined together and in somewhat close ratio (see Sauerbeck's table, p. 99, ENGINEERING AND MINING JOURNAL, July 25th, 1891), it is not true that the volume of money in use in the world, or in use in this country, has been reduced or is now any lower than at any previous time. Indeed, in this country the circulating medium is supposed to be now about 50% greater than it was at the date of specie resumption, January 1st, 1879, gold to this extent having since come into use. Admitting that the Mint estimate of the amount of gold in circulation is probably beyond the actual amount, and allowing for the gold which, prior to 1879, was used for gold-contract business, there still can be no question that the whole circulating medium *per capita* in this country is larger now than it ever has been.

The theory of a close connection between the volume of money and the average of prices of commodities, at variance with the circumstance that prices have been declining while the volume of money has been advancing, is further denied by the wide fluctuations in prices which took place during the years prior to 1879, when our volume of money was stationary; is denied by the hourly, daily, weekly, and yearly fluctuations in prices on the exchanges all over the world, and is annihilated by the fact that money is but little used in actual business outside of retail trade, practically nobody settling large transactions except by the passing of bits of paper which give title to money apparently in bank, the bulk of which money, however, does not exist. People who believe that prices would advance if more money were issued do not give due weight to the truth that in our state of trade development money has become rather a measure of value than a means of exchange of commodities. In ancient times money was both, but every year banking facilities supplant it in the actual work of trade and are likely to continue to take the place of money because the handling of it is so risky and so troublesome. It is argued that money is the base of credit, and therefore the more money we have in circulation the greater can be the expansion of credit; on the contrary, however, wealth in general is the actual base of credit and money is only a small portion of the total sum of wealth. Excepting in time of panic no one thinks of handling money in a large way. No prices are higher for cash than for check. Nobody refuses credit to a customer because that customer has stocks, bonds, merchandise, real estate, instead of money in his pockets. Nearly all the time prices move up and down for causes which directly affect commodities, individually or in groups.

Different nations use different volumes of money and different sums *per capita*, somewhat in proportion to wealth possessed but more in inverse ratio to the development of banking facilities and largely in accordance with the habits of the people. The amount of money in France *per capita* is more than double what it is in the United States, but no person would say either that the wealth in France is greater *per capita* than in the United States or that business over there is more active than it is here. Frenchmen keep money in old stockings; we put it in banks. The banking system of France is in a primitive state; ours is highly developed. The "silverites'" just cause of complaint therefore is against the American people for their habit of parting with money as soon as they get it. If we could be taught to carry always a few pounds of silver in our pockets the silver in use in this country would be largely increased. Or, if we could be shown the advantage of hiding either silver or its paper representative under the bed-room floor or putting our money anywhere but in bank, where it immediately begins to do about ten times the amount of work naturally expected of it, the circulating medium would have to be much larger than it is. The "silverites" should find fault also with the people of Great Britain, as their habit of banking their money instead of hoarding or handling it is quite as objectionable as our own, Englishmen leaving to take care of itself the supposititious need of an increased supply of money to match the increase in wealth, in business or even in population.

If it issues money, the duty of a government to the people is to furnish that amount which is actually needed, and the error of issuing too much of one kind of money may easily prove more disastrous than that of issuing too little of all kinds, for as money is more a measure of value than a means of exchange, the altering of the value of one kind relative to the others may disturb all trade, while the issue of too small a volume of all kinds could be offset by a greater use of banking facilities and by importations of gold and silver. More money is needed at one time than at another, and in a period of great business activity a large quantity of an inferior kind of money may be absorbed without disturbing the parity of the kinds of money in use; whereas, in a period of inactivity the issue of a similar quantity of inferior money would probably disturb the parity of values and produce stagnation in general business. To illustrate—the feeling in financial circles a year ago as reflected by the newspapers was that more silver meant better business and higher prices; to-day the feeling is that more silver means disaster. An explanation of the paradox lies in considering that business was better a year ago than it is now, the average rate of interest was much higher and the reserves of moneys in banks were much lower. Within a year also there has begun an awakening of the American people to the danger of the situation, discussion on financial subjects aided by the actual exportation this year of $70,000,000 of gold doing its legitimate work. A while ago the prospect of a premium on gold was not the common talk that it now is; and, as in trying to ascertain what volume of money is best suited to a people, the habits of the people in the matter of carrying money must be taken into account, so in trying to ascertain how much and what money this country now needs, the growing sentiment in favor of the hoarding of gold should be considered.

The exportation of seventy millions of gold has not had the effect of advancing the rate of interest and this looks as though we had a sufficiency of money, but what would be the effect of changing five hundred millions of gold from money into merchandise? In other words, if this country now needs its fifteen or sixteen hundred millions of circulating media, how would it get along with a thousand millions only? Surely, the duty of Congress is not to act so that the people will hoard more gold, but to act so that the prospect of a premium on gold will disappear. The business community is waiting for the assurance that it will not be compelled to face a reduction of one-third in the total circulating medium. Indeed much has already been done to adjust the needs of business to this possible catastrophe—railway securities have been pressed for sale, great corporations are using less money because of the difficulty of borrowing either here or in Europe, and enterprises generally are held back in waiting to see what Congress will do. A time may arrive when this country can absorb a large sum of silver without displacing gold, but at present with gold demonetization and a gold premium in sight, a free-coinage-of-silver law seems to be foolhardy. There is evidence in the prevailing low rate of interest and in the accumulation of money at financial centers that the total volume of money is sufficiently large; and surely there is no reason to suppose that the parity of values in our money would be more secure if we had in circulation more silver or silver certificates.

Demonstrable to a certainty that free coinage of silver is full of danger to the country, is it certain that such free coinage would benefit the silver-mining industry? Let us say that the market price of silver would be $1.29 per ounce instead of the present price of $1 per ounce. Here is a large advance, but for what length of time? Silver mining would be greatly stimulated, and the total product of the world would be enormously increased; at the same time, the use of silver in the arts would be considerably reduced. Bullion dealers everywhere would forward silver to the United States mint, and European governments would take advantage of the situation to place their countries more firmly upon the gold basis; that is, would pass such laws as would assist their outgo of silver and their income of gold. With silver accumulating in the vaults of the Treasury under such circumstances, how long would it take the American people to force its Congress to repeal the law, and not only to repeal a free-coinage law, but to stop all purchases of silver?

The present price of silver is upheld by the Treasury's monthly purchase of an amount about as great as the whole product of the American mines; and by the purchase of large quantities of silver for use in the arts, because of the comparatively low price of the metal. But if you drive manufacturers into the habit of using less silver, and if you fill the Treasury so full that necessity or a revulsion in public sentiment shall shut up this dumping hole, what then would be the market price of silver in the face of a phenomenally large production? No law can be passed which could not be repealed, and therefore the question for those engaged in the silver industry appears to be this: Would the profit of an advance in the price of silver for a short time cover the later loss of a heavy decline to last a very long time? What would be the market price of silver if, to get back to the gold basis, the United States Treasury, instead of buying $4,500,000 worth of silver per month, should become a seller of silver and a buyer of gold? The quantity of silver which could be supplied to the Treasury by the world, assisted by the world's mines, at $1,29 per ounce, is unlimited; not so the amount which the world could be induced to take back at $1, or even at 75 cents per ounce, if we may be allowed to guess at a figure.

A stock argument of the silver advocate is this: Because silver and commodities have declined together—cause and effect in their minds—therefore, if you advance the price of silver you will advance the prices of commodities. A careful study of the general decline in prices, however, will show that silver and commodities have felt the force of great economic changes, these changes being the cause of the downfall in almost all prices, that of silver included. Any man of business familiar with one or more articles of trade or commerce which have fallen in price, or familiar with the decline in freight and transportation rates during the period since the very high range of 1872, can see that invention and discovery have, one or the other or both, put down prices and rates

at least in particular instances; and we have yet to hear of a case of decline which can be attributed to the decline in silver, excepting, of course, in goods manufactured from this metal.

Invention and discovery have played a great part in the decline of silver itself, new mines and new processes yielding greatly increased production; and if we take away any of the staple articles, iron, steel, petroleum, cottons, woolens, paper, quinine, tea, coffee, sugar, beef, wheat, etc., etc., a similar story is told of a revolution accomplished or now progressing, everything being put upon the market at much lower cost than ever before. Fortunately, this part of the silver question has been gone over in detail by Mr. David A. Wells in his *Recent Economic Changes*, and no fair-minded person can read that important work and still believe that prices have fallen because silver has fallen. If a monetary change, such as the "striking down" of half the world's money, as orators charge, had really put prices down, then the average rate of wages would have fallen with prices; but it is notorious that wages have not fallen, and such a monetary change would have put up the rates of interest, whereas really the rates of interest have fallen.

It may be pertinent to remark, though, that except for the importance of getting at the truth, those who are charged with the aforesaid striking-down might well be content to allow the charge to stand, and upon it to claim the gratitude of the vast majority of the people. Borrowers of money obtain it at lower rates than they were obliged to pay a score of years ago, and all who work for wages can obtain, to-day, more and better food, clothing and luxuries, in exchange for their weekly wages than ever before.

To advance he price of silver to the level of 1873 is as far from the possible as it is to get the world to go back to the old methods under which all commodities, including silver, cost much more than they do to-day; but the people who think differently ought at least to see that if there be a way backward the first step is to bring European governments around to the point of adopting that way. All of the governments which, during the past 18 years, have shown by their acts a disposition to strengthen their reserves of gold and have shown fear of the further depreciation of silver, may now fairly be supposed to stand ready to take advantage of a false step on our part. European financiers and governments are fully aware of the advantages which a stable measure of value has over an unstable measure, and it is unreasonable to think that these governments would follow our lead, when free coinage here would enable them to reach the ends they have sought so long. It may be questioned whether the combined efforts of all governments could establish for a long time the old parity of 15½ silver to 1 of gold, but certainly our government alone could not do it.

If prices had been put down by "demonetization"; if it were a good thing to put them up again, thus raising the cost of living, and if it were possible to do so; if the sum of money which people carry and the sum used in business were changeable by act of Congress; if the majority of our people were engaged in silver mining, and the others had no right to object to the Treasury's paying twenty-one per cent. more for silver than the world says it is worth, and if the paying of such an advance would permanently put up the world's price; if the use of an unstable measure of value were advantageous, or if by the passing of a law subject at once to agitation for repeal we could make silver a stable measure of value; if the natural law (called Gresham's) had never been discovered, under the operation of which an inferior kind of money tends to drive from a country a superior kind; if there were good evidence of a scarcity of money and if that scarcity could be overcome by silver without forcing exportations of gold; if all this were true, the friends of the white metal would be able to make out a better case. But Europe stands ready to exchange silver, commodities and American securities for gold; the world's silver, mined at $1.29 per ounce, could overwhelm with silver the Treasury of the United States; people will not carry and business will not use any more money than is customary; prices will adjust themselves to the laws of supply and demand without much regard to the wishes of congressmen; the whole country has a right to object to the buying of silver at a high, arbitrary price; silver cannot be permanently advanced in value by human law; and, lastly, whoever has a salable thing can obtain money for it as easily now as ever was the case, and there is no indication of a scarcity of money or a need for the issue of more silver. The possible benefits alleged to be likely to come from the free coinage of silver are mythical, or are far out-weighed by the certain evils to accompany and to grow from it; and the community has suffered so much already from the prospect of free coinage that the proposition ought now to be promptly buried beyond the chance of any resurrection.

The Determination of Silica in Presence of Iron.—The presence of a large quantity of iron is generally considered capable of interfering with the determination of silica by evaporation to dryness, says M. Leclerc, in the *Chemical News*. The decomposition of ferric chloride may be avoided by uniting it with potassium chloride so as to form a double salt, a well-known device which has been long ago utilized by M. Schloesing. For instance, in the determination of silicon in cast iron, 1 grm. of the metal is treated with 20 c. c. of nitric acid and 10 c. c. of hydrochloric acid. After the reaction is over, the chief part of the nitric acid is expelled by ebullition with successive additions of hydrochloric acid—30 c. c. each; 3 grms. of ammonium chloride are added, and the liquid is concentrated to the state of a syrup. The evaporation is completed in the stove, so as to expel the last traces of the nitro compounds in the state of gas. The residue is taken up in hydrochloric acid; there are added 3 grms. pure potassium chloride and water enough to dissolve it, and the evaporation is then continued to dryness. The double iron and potassium salt crystalizes at the same time as a certain quantity of double iron and ammonium chloride. These salts are soluble in cold water, but they are first dissolved in hydrochloric acid to remove accessory elements. The silica coagulates upon the residue of carbon; it filters and washes easily. After ignition at a high temperature it remains pulverulent, but dense and easy to weigh. Without the presence of ammonium chloride this silica would contain manganese; it will also be contaminated with potassa if all the nitric acid has not been previously expelled. Chrome is also re-dissolved completely by taking up the residue at first in concentrated acid. It is well to reduce a little of the chrome to chromous chloride by dissolving a little pure zinc or aluminum chloride in the liquid.

PRODUCTION OF BARYTES IN THE UNITED STATES.*

By E. W. Parker.

Barytes, or natural barium sulphate, is a well-know mineral, and liberally distributed, but it is only recently that it has become of any commercial importance. Barium sulphate has been prepared artificially for a number of years, and is used to a considerable extent in the place of white lead, which it resembles closely. Improvements in machinery and in the process of treating natural barytes have overcome many of the objections which formerly existed to its utilization, and considerable attention is now being given to the localities in the United States where it is found. The mineral, in order to be available for the uses to which it is put, must be fairly free from quartz grains, the stain of iron rust or other impurities. If the barytes is stained to any extent it is practically valueless, as a good white color is essential to its usefulness. Quartz grains or other hard substances with which it is apt to be associated injure the machinery in grinding. The purest barytes so far produced in this country comes from Missouri, though a very fair grade is now being mined in considerable quantities in Virginia.

The returns from all producers of crude barytes show a product in the United States, for 1889, of 21,460 short tons, valued at $106,313, against 20,000 short tons in 1888, valued, approximately, at $110,000. The production was limited to four states, as shown in the following table:

States.	Short tons.	Value.	States.	Short tons.	Value.
Illinois.....	200	$1,300	Virginia.....	10,702	$57,298
Missouri.....	7,558	32,715			
North Carolina.	3,000	15,000	Total.....	21,460	$106,313

Barytes mining in Missouri is carried on in so irregular a manner that it is impossible to obtain any reliable statistics relative to labor and wages. Farmers mine it in off seasons; that is, when there is no farming to do they employ themselves and their hands in getting out the barytes found on their farms, haul it to the nearest tradesman, and receive in exchange dry goods, groceries, or other necessaries, or cash. The farmers thus occupy time which would otherwise be idle, and dispose of the barytes at a less figure than it would pay to mine it systematically. The supply thus obtained is nearly sufficient to keep the mills up to their fullest capacity.

A few mines are, however, operated with some degree of system, though for want of proper records it is necessary to estimate a considerable portion of the matter of labor and wages. The mines altogether give irregular employment to about 580 men. The rate of compensation for foremen is about $2.50 per day, and for laborers from $1 to $1.50 per day. It is rarely, however, that the men make full time, and their daily earnings are reported at from 50 to 75 cents. From 75 to 100 women obtain the same sort of irregular employment, earning about 35 cents per day. Boys get from 25 to 30 cents per day. One mine was active nearly the entire year, but in most cases the number of days worked at the mines ranged from 125 to 200.

The following statement shows the amount of money paid for operating and developing barytes mines in Virginia, North Carolina, and Illinois: Wages (including office force at mines), $54,524; paid for supplies, $8,200; other expenditures (rent, taxes, insurance, etc.), $2,083; total, $64,807. The amount of capital represented in barytes mines in the United States, worked in 1889, was as follows: In land, $184.450; in buildings, machinery, etc., $66,450; in tools, implements, live stock, etc., $76,350; cash, $23,900; total, $351,150. The aggregate value of the lands on which barytes is found in Missouri is placed at $4,500,000, but the estimates are based on prospects rather than on actual development.

The consumption of barytes seems to be steadily increasing. It is used quite extensively in the arts, finding its greatest service as an adulterant in the manufacture of paint. Its great weight, its likeness in many respects to white lead, and the fact that it can be used in place of that commodity, enable manufacturers to replace the costlier article with a substitute much to their own advantage. It is claimed by some that a mixture composed of one-third barytes, one-third zinc white, and one-third white lead makes a better paint than the pure white lead. This is probably true for some special purposes. Barytes is remarkable for its weight, having a specific gravity of about 4·5, or about the same as iron ore. It can therefore be used with white lead without any appreciable loss of weight in the mixture.

Besides the localities from which the supply has been thus far derived, there are deposits in South Carolina which are now being investigated with prospects of development at an early date. The mineral is found along the line of the Charleston, Cincinnati & Chicago railroad, in the building of which a considerable vein was exposed, but occurs in largest quantities in the vicinity of King's Creek, where a side track can be run in and the material loaded on cars. Lack of transportation was one of the drawbacks to its development in the past, but this difficulty has been removed by the railroad builders. Diffused through the barytes is a small percentage of quartz grains, which make it necessary to use other grinding machinery than the buhr mills ordinarily used for that purpose. It is expected that mills for this purpose will be put up in the vicinity of the mines, thereby insuring a more profitable business than can be obtained by sending the barytes elsewhere to be ground and floated.

At Terrazas station, State of Chihuahua, Mexico, there are some six or eight veins of barytes from 1 to 5 ft. thick, said to be of a good white color, free from yellow, brown, or black iron stains, and a considerable portion of which has a very delicate pale-blue tint, considered valuable in the highest classes of barytes, as it tends to neutralize the yellowish tint of inferior qualities. The company owning the property upon which these veins are found offered to sell the barytes in car loads at $5 per short ton, free on board cars at the shipping point.

Nearly all, if not all, of the barium sulphate imported into the United States is artificially prepared. Importations are quoted under various names, such as blanc-fixe or permanent white, satin white, enameled white, lime white, etc. The imports of manufactured barium sulphate in 1889 amounted to 3,601,506 lbs., valued at $22,458; unmanufactured, $13,-571,206 lbs. valued at $7,660.

The Zone Railway Tariff System is to be introduced upon the railways in the suburbs of Berlin, the new regulation going into effect not later than April 1, 1892.

*From Census Bulletin No. 75.

PROMINENT MEN IN THE MINING INDUSTRY.

Edward Franklin De Camp.

Edward Franklin De Camp was born in Charlottesburg, N. J., on Oct. 15, 1850; he died in Jersey City, N. J., Aug. 26, 1891.

Thus was cut off in his prime one who had done a great deal of work, and done it so well that many an older man would have been proud to have accomplished as much in a longer period. His works survive him and his eulogy is found to-day in the hearts of all those with whom he came in contact.

Mr. De Camp's boyhood was passed among the hills of northern New Jersey. In few cases has the law of heredity been so signally illustrated as in his own. It may be said that he was born into the business, his being indeed a mining family; on both sides he was descended from people who had been engaged in the iron-mining and smelting industry for three generations, and it is not surprising that at an early age he displayed a marked inclination for the same pursuit. From his first youth he devoted himself to the thorough study of all subjects pertaining to his profession. An unfortunate accident whereby he lost his right arm when he was but twenty years of age, caused him, however, regretfully to turn his mind to a life calling for less bodily activity and exposure than mining. With this in view he took a course in law and was duly graduated from the Columbia Law School. Subsequent to receiving his degree he practiced for one year, but his inborn predilection for the calling of his ancestors was too strong to be overcome by even so serious a handicap as the loss of his arm. He united with his eldest brother and together they succeeded in developing what in that day were among the most prominent iron mines of New Jersey. He was engaged successfully in this undertaking until the financial panic of '73 to '75 made the iron trade so dull and unprofitable as to move him to look elsewhere for a new field of operations. He went to Georgia and engaged in gold mining profitably to himself and with benefit to the industry of that State. His labors there did much to renew attention to the gold mines of Georgia, and his name is gratefully remembered by all mining men interested in those fields.

Mr. De Camp returned north in 1881, and shortly after that time making a trip to Nova Scotia, the favorable impressions which he received of the mineral resources of that province led to the establishment in New York of the firm of Adams & De Camp, formed with the object of developing its mines and of placing them in this market. His estimates concerning these mines were wonderfully accurate, and he foretold the results which legitimate enterprise would produce in that country. He saw that while there were no great bonanza gold mines in Nova Scotia, yet some of those that did exist there offered reasonably sure returns to capital properly invested in them, and his own success and the steady dividends since paid by many of those with which he became connected abundantly proved the correctness of his opinions. He was the acknowledged pioneer of mining in that region and the recent great development of Nova Scotia gold mines was to a great extent due to his successful efforts in directing the attention of capitalists to them.

Mr. De Camp was a man of excellent judgment respecting the possibilities of mines, and of exact business methods in the conduct of all enterprises coming under his direction. His kind, though firm treatment of his subordinates endeared him to all who served under him, and his own indefatigable energy in supervising and directing the enterprises in which he was engaged won for him success where many others would have failed. A careful and systematic manager, he was broad in his views and was always on the *qui vive* for opportunities to introduce improved and labor-saving machinery. His business ability was demonstrated in more ways than one. He obtained a charter for, and built, the system of street railways in Halifax, which proved to be a very successful undertaking from a business point of view.

Warned repeatedly of the danger of exposure of any sort by the disease which eventually ended his life, he had of late years retired from the active exercise of his profession, and with the exception of the examination of mines as an expert, he had confined his attention to lighter pursuits.

His genial flow of spirits made him a universal favorite. His humor, for which he was famous among his friends, was unfailing and without sarcasm—the true quality of humor that cheers men and lightens sorrow. He had the rare trait of unselfishness, that is better than mere generosity. The profession at large regrets deeply the death of an able engineer, and all who knew him mourn the loss of a noble and upright man.

EDWARD FRANKLIN DE CAMP.

THE POWERFUL REDUCING ACTION OF SILICON.*

By H. N. Warren.

Metallic, or graphitoidal, silicon is in itself one of the most stable and inert substances with which specialists are acquainted, refusing even the oxidizing influence of the oxyhydrogen flame; but, strange to say, this substance, when in admixture with a large number of metallic oxides, becomes at once oxidized, the oxide in admixture with the same becoming itself reduced. Thus, for instance, if an excess of litharge be heated to dull redness only, in contact with silicon, it becomes at once reduced to metallic lead; and, with the same facility as if carbon had been employed, when an excess of silicon is introduced a brittle regulus of silicide of lead is produced, although no such compound is obtained when these elements are heated together. With copper, and all readily reducible oxides, either a silicide, or—when the oxide is in excess—the pure metal is obtained. A curious compound is obtained when a slight excess of silicon and oxide of silver are projected into a red-hot crucible; incandescence takes place with considerable brilliance, the product formed being a semi-fluid compound, containing about 40% of silicon, in appearance resembling cupric sulphide, but, unlike that substance, refusing to melt at the highest furnace temperatures, and only with difficulty when before the flame of the oxyhydrogen blowpipe.

Even metallic chromium is readily reduced by heating silicon together with the oxide of that metal, tungstic and molybdic oxides suffering a like decomposition.

A mixture of equal parts of finely divided silicon, aluminum, and litharge, when heated together, explodes with fearful violence; in fact, so powerful is the explosive strain that I have failed to obtain any article to withstand it, which must be equal, if not superior, to fulminating silver, even cast iron being readily shattered. The experiment is most safely performed by taking not more of the mixture than would cover a threepenny piece, supporting the same upon a stout clay brick, and directing the flame from the blowpipe upon it; the whole generally very quickly melts, then frequently assumes a spherical condition similar to a globule of sodium. At this point it disappears with a deafening report, producing a vivid flash of light accompanied by a large volume of vapor. The surface of the brick, after the experiment, is observed to have become indented, similar to the effects observed from the detonation of nitrogen chloride.

Compressed Air System at Offenbach-on-the-Main.—A large plant for the transmission of power by compressed air has been recently installed at Offenbach, says a correspondent of *Industries*. The laying down of the pipes was commenced in November last, and has been carried out in spite of many difficulties. The total length of pipes laid amounted to 7,760 yds., of which 1,702 yds. consisted of pipe 1 ft. in diameter, 1,710 yds. 8 in. in diameter, and 4,347 yds. 4 in. in diameter. The pipes were laid about 1½ ft. below the footpath. The connections of the pipes were made by means of india rubber, as in the similar installation in Paris. Valves are provided for shutting off the air from separate lengths of pipe. A trial of the system was made by the engineering authorities of the town and by the Boiler Inspection Association, which showed that there was a loss of ·11 of an atmosphere in 7½ hours—that is, ·39 of a cubic meter per hour kilometer. This loss amounts to 13% on the daily output, the power transmitted being, on an average, 500 H. P.

* *Chemical News*, Aug. 14, 1891.

LA PLATA DISTRICT, UTAH.

The new mining camp, La Plata, which is now the center of attraction in Utah, is located in the southeastern part of Cache County about three miles from the Weber County line. The most direct route to the district is by way of Ogden, through Ogden Cañon, South Fork and Beaver Cañons, over the divide to Bear Gulch, at the head of which La Plata is located. The distance by this route, over which all traffic is now going, according to a correspondent of the Salt Lake *Herald*, from whose letter we abstract this description, is about 40 miles. The commissioners of Weber County are now building a road through Middle Fork Cañon, for which they have appropriated $2,500, which will shorten the distance by 10 miles. Through Greetson's Cañon the distance from Ogden is but 25 miles, but this route is regarded as impracticable for a wagon road. The commissioners of Cache County are building a road from Logan to La Plata, running through East Cañon and Bear Gulch, a distance of 25 miles, which, it is said, will be completed within 10 days. A force of 100 men is now at work upon this road, and 20 men upon that from Ogden.

The town of La Plata, which has already been organized, is located upon a hill side and is amply supplied with water by two small streams. There is an abundance of timber in the vicinity. The town has at present a population of several hundred men, with 80 tents, three frame houses and six log cabins. Several streets have been laid out and one is now being graded. An attempt is now being made to secure the location of a post-office at the camp. Col. A. B. Hays is the president of the temporary town organization, and a vigilance committee has been appointed to maintain order.

The first discovery of ore in La Plata was made about July 17, by a sheep herder, named John A. Johnson. He was driving his sheep over the hill, and picking a handful of stones to throw at them he noticed that one was heavier than the rest. He broke it, and discovered that it was almost pure galena. He made known his discovery to Mr. W. H Ney, of Brigham, and offered him a half interest in the find to locate it. This was done July 20, and the claim was called La Plata. The news of the strike soon spread, and the influx of men from the mining camps of Utah commenced. The stories of rich mineral that have been sent out from the camp have been, however, very much exaggerated. The discoveries so far have been chiefly of float, less than 200 ft. of work having been done in the district.

Practically nothing as yet has been determined concerning the geological characteristics of the district. The country consists of blue and brown limestone, similar to that of Aspen, quartzite and porphyry, and is much broken up. Nowhere in the camp has a ledge or vein with well defined walls been discovered, although it is probable that further work will show such. At present there are three promising properties in the camp—La Plata, Sundown and Sunrise. The first named has been taken over by a company, La Plata Mining Company, just organized, in which A. E. Hyde, W. B. Preston and Moses Thatcher, of the Bullion, Beck & Champion Mining Company, of Tintic, are interested. A hole 20 ft. deep has been sunk on the discovery on this property, from which 20 tons of ore, assaying from 2 oz. to 6 oz. of silver per ton, and about 70% lead, have been taken. The ore is found in irregular seams, with no defined wall. It is thought that this is not the real vein, and it is the intention of the company to sink a shaft and crosscut for the latter. The Sundown property is located a few hundred feet northwest of the town. No work has been done on it with the exception of a shallow surface cut which shows a body of galena ore 4 ft. wide and 5 ft. thick, which assays about 2 oz. per ton in silver and 70% to 75% lead. About 10 tons of ore have been taken from this strike, which is apparently nothing but a boulder. The Sunrise claim adjoins the Sundown on the north and shows ore of somewhat better grade, but the bodies are of the same character. There are a large number of other claims in the district upon which prospecting work is now going on, but none, as yet, show anything of importance.

THE MANUFACTURE OF SPECTACLE LENSES.

The bit of glass to be formed into a lens is fastened by means of pitch to a small block of hard rubber so that it may be more readily handled, says Prof. C. H. Henderson, in the *Popular Science Monthly* for September.

It is ground by being pressed against a rapidly revolving metal tool, whose curvature is equal and opposite to that desired in the lens. This is known as the "rough tool" and is made of cast iron. It is mounted on a vertical spindle, and is kept moistened with emery and water. Several grades of emery are used in succession, changing from coarse to fine as the grinding proceeds. As a result of this process the glass has a rough surface and is no longer transparent. It is now transferred to the "fine tool." This is made of brass and has its surface as true as possible. It is compared from time to time with a standard curve, in order to insure accuracy. In this second grinding the abrading material is rouge (carefully calcined sulphate of iron).

Finally, the lens is polished by being pressed against a piece of cloth powdered with rouge and fastened to the rotating tool. The glass is now loosened from its block, turned over, and the reverse side of the lens ground. When this has been accomplished, the lens must be cut down to the proper shape for mounting in the spectacle frame. It is placed on a leather cushion and held firmly in position by a rubber-tipped arm, while a diamond glass-cutter passing around an oval guide traces a similar oval on the glass below. The superfluous glass outside of the oval is removed by steel pincers, the rough edges are ground smooth on Scotch wheels and the lens is ready for mounting. The glasses for small telescopes, microscopes, burning glasses, and the like are ground in the same fashion.

Continuance of Mining Lease After Forfeiture.—Where a mining lease was entered into, providing for the payment of a certain sum per day for each day between the execution of the lease and the completion of a shaft, and providing that the lease should terminate on a certain day unless a shaft was completed, upon failure to complete, if the parties go on under the contract as before, the lease is continued by implication and the per diem payment may be recovered until its termination.—*Agerter v. Vandergrift, Supreme Court of Pennsylvania*, 21 *At. Rep.*, 202.

SPONTANEOUS IGNITION OF COAL.

Prof. Vivian B. Lewes read a paper on the "Spontaneous Ignition of Coal" at the recent meeting of the British Association, at Cardiff, Wales, in the course of which he observed that ever since Berzelius first suggested that the heat evolved by the oxidation of the pyrites in coal might have an important bearing on spontaneous ignition, it had been adopted as the popular explanation of the phenomenon, and although the researches of Richets and others had gone far to disprove it, this theory was the generally accepted one. It could be proved, however, that the coals most liable to spontaneous ignition often contained as little as 0·8% of pyrites, and rarely more than 2% and if this amount were concentrated on one spot instead of being spread over a very large mass, and if it were oxidized with the greatest rapidity instead of taking months and often years to complete the action, the total rise of temperature would be quite inadequate to account for the ignition of the coal, which required a temperature of 370° C. to 477° C , according to its characteristics. The liability to spontaneous ignition also did not increase with percentage of pyrites, while heaps of pure pyrites, free from carbonaceous matter, never showed any tendency to serious heating. The true explanation of ignition of coal was partly physical and partly chemical. Freshly-won coal had the power of absorbing from 1·5 to 3 times its volume of oxygen from the air, and this being rendered chemically highly active, partly by compression and partly by elimination of nitrogen, attacked some of the bituminous hydrocarbons in the coal, converting them into carbon dioxide and water vapor. Many causes tended to effect the rapidity of that action, which was the real source of the heat, and directly the temperature began to rise, unless the heat evolved could freely diffuse itself, the chemical action was so energetic that ignition quickly followed. Up to 38° C. the absorption of oxygen and consequent chemical action went on so slowly that there was little or no chance of undue heating, but directly that temperature was exceeded with some classes of coal, ignition was only a question of time and mass. The action of mass, condition and temperature could be beautifully traced in the statistics of spontaneous ignition of coal cargoes, while the bunker fires, which were now becoming perilously frequent on the fast liners, were due entirely to rise in temperature from the bunker bulkheads being too close to the hot-air upcast shafts from the boilers and furnaces.

Sometimes the heat to start the reaction was acquired in the tropics, and afterward went on increasing until fires somewhat frequently broke

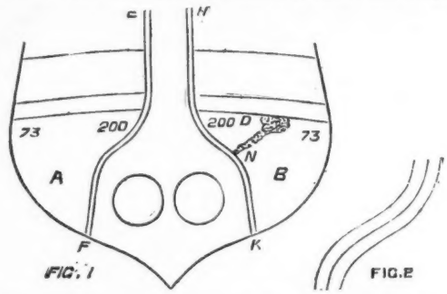


FIG. 1 FIG. 2

out off the Cape of Good Hope. In the large liners the boiler casing was only separated from the coal bunkers *A B*, Fig. 1, by the 9-in. bulkheads *E F* and *H K*, and at the point of greatest heat the temperature was sometimes 200° C., but near the sides of the ship, where the heat could more freely escape, the temperature was sometimes about 73° C. The fires did not usually begin at either of these points, but at *D*, where the temperature was intermediate, for at that point there was a free supply of air, a thin line of charred coal *D N* extending thence to the place of highest initial temperature.

In the discussion which followed the reading of this paper, Sir Lowthian Bell said he had not found spontaneous fires in his works to begin at the surface of the coal, but lower down; Sir Frederick Bramwell thought that Mr. Lewes had proved his case, and hoped that he would suggest a remedy. On no occasion did he remember that combustion began at the top or anywhere near it. Radiation and other causes might make the fire rage most furiously below the point where ignition actually took place. Prof. P. P. Bedson said he had of late been experimenting with the gases given off from coal dust. He was of opinion that the cause of explosions in coal dust was not from pyrites so much as from hydrocarbon or some resinous bodies in the coal. He believed that explosions took place very frequently at ordinary temperature. Given sufficient mass and sufficient time, one could get an explosion of coaldust at 100°C. or below.

Professor Lewes, in reply, said with regard to ignition on board ship, he thought that if there were a circulation of cold sea water between the boiler space and the coal bulkheads the coal could never reach the temperature of ignition. This could be accomplished by the addition of another 9-in bulkhead, as in Fig. 2. It would make in effect a sort of "water jacket," and would be of great advantage on iron-clads, where the smokeless powders and other explosives were likely to be injured by the heat.

Canadian Railway Traffic in 1890.—A blue book just issued at Ottawa shows that in 1890 there were 13,256 miles of railway under traffic in the Dominion of Canada, against 12,638 in 1889. The paid-up capital invested on these lines was $764,427,271. The gross earnings were $45,532,198, and the net earnings $13,540,422. The freight carried was 20,787,469 tons, and the number of passengers was 12,821,262. The train mileage was 41,849,329, against 38,819,380 in the previous year. Two hundred and seventeen lives were lost by railway accidents during the year, an increase of seven over 1889. The progress of railways in the Dominion during the past decade is shown by the following statement. 1880: Mileage under traffic, 6,891; tons of freight carried, 9,938,585; passengers, 6,462,948; earnings, $22,901,725. 1890: Mileage under traffic, 13,256; tons of freight carried, 20,787,469; passengers, 12,281,262; earnings, $45,532,198.

THE MANHES' CONVERTER FOR COPPER MATTE.

In the ENGINEERING AND MINING JOURNAL of May 23d, 1891, we noted the successful inauguration of the Manhés' copper process at the Jerez-Lanteira mines, in the province of Granada, Spain. So far the results there have been extremely satisfactory. From mattes containing as low as 10% of copper, the metal is obtained at one operation, assaying ordinarily 98·50% to 99% fine, and at times as high as 99·75% fine.

The Manhés' converter has been the subject of much study and experiment on the part of M. Pierre Manhés, its inventor, and it is now claimed that the difficulties heretofore encountered have been overcome, and that the present type of converter is as near perfection as possible.

The improved Manhés' converter, such as is used at the Jerez-Lanteira mines, is illustrated in Figs. 1, 2, 3 and 4, representing a transverse section of the cylinder, an end elevation, side elevation, and plan of the carriage, respectively. For these illustrations we are indebted to *Industries*, which republished from *Revista Minera Metalurgica y de Ingenieria*, of Madrid, a description of the apparatus and its working by Señor Sanchez Massia, who is in charge of the Jerez-Lanteira mines. The apparatus, as shown in Fig. 2, consists of an iron cylinder, having an outer diameter of 4 ft. 2 in., and is 4 ft. 3 in. in length. It is made of iron plates ¾ in. thick. In the upper part of the cylinder there is an opening on which a conical chimney is riveted, the highest part of which has a diameter of 22 in. On one side of the cylinder, and all along its length, an air chamber *C C* is fixed, of rectangular shape, and in this 11 tuyères *T T* are inserted, of ⅝ in. in diameter. In front of each tuyère there is a hole made in the outside of the air reservoir, which is closed by a wooden stopper. Through these holes the tuyères are kept free for the entrance of the air. At one of the ends of the air reservoir, tubes *A* are fixed for the entrance of the blast, and these tubes are so arranged that, the highest being connected with the air main, whatever position the converter takes on turning on its axis, the supply of air is kept up uninterruptedly. On the outside of the converter, and at half of its length, a toothed segment, *E*, is placed, for the purpose of moving the converter on its axis in the manner to be described hereafter. On both sides of this toothed segment, and about 12 in. from the end of the converter, two flat ribs of iron are placed. Lastly, in the upper part of the converter two strong hooks are provided to lift the converter by means of a crane or differential pulley block whenever required. The converter is placed and moved for the operations in a carriage, which we will now describe.

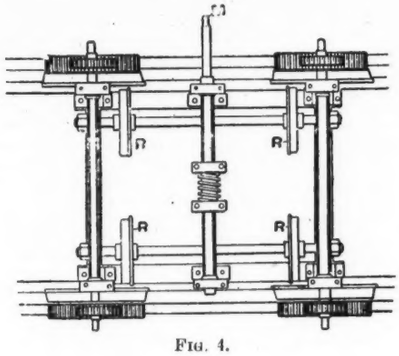


FIG. 4.

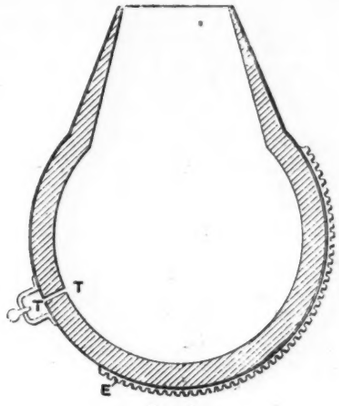


FIG. 1.

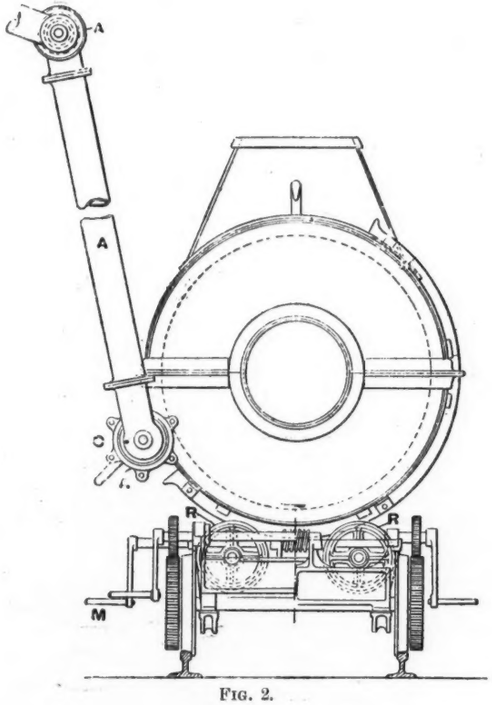


FIG. 2.

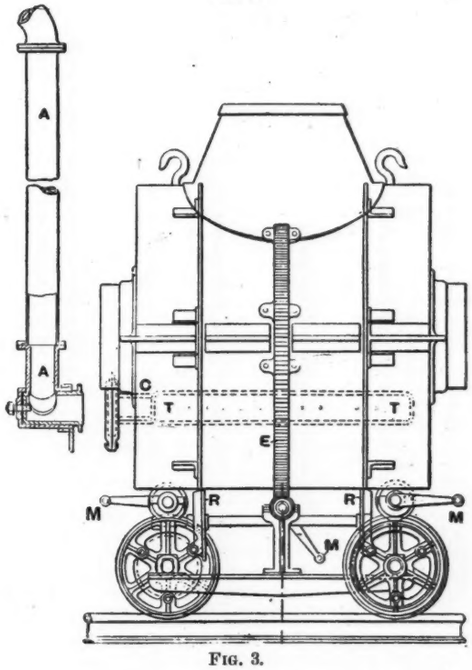


FIG. 3.

This carriage is a four-wheeled one, running on rails, and each wheel has fastened to it a toothed wheel which gears into a small pinion. By means of the handles *M* the wheels are turned, giving to the carriage a smooth forward or backward movement. On the carriage there are four loose wheels *R*, on which the converter rests, and which facilitate the movement of the converter round its axis. For the purpose of complete movement the carriage carries a shaft, in the center of which is a worm wheel geared to the tooth segment *E*. The shaft, when operated by the handle *M*, places the converter in the inclined position suitable for loading, unloading, blowing or discharging the slag as it may be required.

The operation of the Manhés process at Jerez-Lanteira is thus described by Señor Massia: The carriage runs on rails placed at a level 5 ft. lower than the floor of the blast furnace in which the matte is made, and on being brought in front of the same, the handle *M* is turned and the converter is inclined so as to cause the matte to run into it. When the charge is in the converter, this is raised to a vertical position, and is carried under the chimney for the outlet of the gases and fumes, and after being thus placed the air chamber is connected to the air main. The air is then admitted, and the converter inclined so that the air may enter and go through the charge at a convenient depth. This depth varies with the quality and composition of the matte treated and may also vary at different stages of the operation. The blast oxidizes the sulphur, arsenic and antimony, and these pass to the chimney, whilst the fixed elements are also oxidized and mixed with the silica of the lining. Sometimes silica is added to the charge, by which means the lining is made to last longer. Usually a lining lasts for 24 hours, and for continual work three converters should be kept, which is easy enough, as the cost of each is only about $500. Should the slag be in excess the blowing is stopped, and the converter inclined to let out a part of it; then the converter is brought to its proper position and the blowing continued. During the operation a man is kept continually at work to clear the tuyères. During the blowing, particles of slag and matte are expelled from the converter, and the men in attendance are protected by a kind of horizontal umbrella of iron fixed on their shoulders. The end of the operation is recognized by the intense green color of the

flame, which indicates that some copper is being burnt. At this stage the blowing is stopped, the converter inclined, the slag raked out, and the copper run out into ingot molds.

Whatever may be the quality of the matte acted upon, success can always be attained, since this depends upon the depth at which the charge is blown. This depth can always be regulated by the inclination of the converter. The weight of the charge may vary within wide limits, but at Jerez-Lanteira it is usually one ton. The time employed in treating each charge varies from 20 to 40 minutes, according to the yield of the matte; the shortest time being for the richeest matte. The heat left by one charge in the converter is enough for the next, and therefore, when the working of the converter does not keep pace with the smelting of the ores, it is better to store the excess of matte and remelt it again. The amount of coke used for smelting is 8% of the weight of the matte. The slag always contains some copper, and for this reason it is always sent back to be passed through the cupola. The fumes from the converter are made to pass through a gallery 55 m. in length, with the object of gathering in some considerable part of the antimony contained in the ores.

When Manhés' system of dealing with copper mattes is compared with the usual method, a very great economy of fuel is shown. At Jerez-Lanteira, where water power is used for the blowing engines, the fuel consumed is only one-seventh of what would be required in the usual method. The mattes from which the best results are obtained are those containing 20% iron and 25% sulphur.

The air is injected at a pressure of half an atmosphere, or, say, 7½ lbs. per square inch. The blowing engines employed at Jerez-Lanteira were made by the Fives-Lille Company of France. The air for the air motors which drive the blowing engines proceeds from the general air compressing installation of the company, fixed at a distance of three miles from the works. This delivers the air at a pressure of 50 lbs. per square inch.

THE NEW BLAST-FURNACE PLANT OF THE ILLINOIS STEEL COMPANY.

Written for the Engineering and Mining Journal by Lucius A. Hine, E. M.

Of all the companies in the United States organized for the manufacture of steel products there is not one that can boast of a more extensive plant, complete in all its parts, or of a more economical administration of the difficult affairs of such an institution than the Illinois Steel Company. One can form something of an idea of the magnitude of the business of this concern when he learns that it has $25,000,000 actually invested in the business, and that there is a probability, in the no distant future, of profitably employing double that amount of capital.

The plant of this company comprises the works at Joliet, North Chicago, South Chicago, Milwaukee, and the Union Steel Works on the "west side" in Chicago. The total number of blast furnaces at the five places is nineteen, eight of which are in South Chicago. The furnaces of the Union works, which have been under the direction of Mr. C. H. Foote for a number of years, have made a splendid showing, one of them, "The Little Joker," having run for months at a time, consuming an average of 1,627 lbs. of coke to the ton of iron made; in one instance this figure was as low as 1,605. The stoves used with this furnace were designed by Mr. Foote, and they are remarkable from the fact that the bricks used in their construction were unusually thin, and made so that they would interlock, thus obviating the necessity of laying them with mortar. It is not difficult to keep the temperature of the blast up to 1,400° F. with these stoves, as the walls are very thin and a large heating surface is available.

The Union works are noted not only for their superior furnace practice but their steel mill deserves a good share of praise. This has been remodeled of late, and with only two converters it has been able to turn out 28,000 tons of steel rails in 588 hours of actual work. The mill at South Chicago is considerably larger. It is able to produce over 40,000 tons of rails in one month.

We have mentioned above that there were eight furnaces at the South Chicago works. Four of these have been just constructed, one of them not yet being completed, while the other four, known as numbers 1, 2, 3 and 4, have been in operation for a number of years. The numbers of the new furnaces are 5, 6, 7 and 8.

These furnaces are built and equipped in accordance with our most advanced blast-furnace practice, and the arrangement and location of the several portions of the plant are such as to give the best results with a minimum of expense and labor. The furnaces are built in a line extending east and west, with the cast houses branching off to the south, and they may be considered as constituting two separate plants of two furnaces each. The individuals of each pair are side by side, and 126 ft. from center to center. Each furnace is 85 ft. high. Nos. 5 and 6 are similarly constructed, each having a bosh of 22 ft., hearth of 12½ ft., and a stock line of 16 ft. In No. 7 the bosh is 20 ft., but in other respects the lines are the same as in Nos. 5 and 6. Number 8 is considered, as far as the lines are concerned, as quite a radical change from the other three, for its bosh is only 19½ ft.; hearth, 13 ft.; and stock line 13½ ft., thus showing a tendency to spread out at the hearth and contract in the upper portions. This, however, is not as radical a change as one would at first suppose, for these lines strongly resemble those of "The Little Joker" mentioned above. The management is so favorably impressed with these lines that it is following them quite closely in the repairs now under way on a couple of furnaces in Joliet. Of course these lines would not be adapted to all ores. Numbers 5 and 6 are built with five, and number 7 with nine rows of bosh plates Each furnace is supported by eight columns, 20 ft. high, and is reinforced at the hearth with a steel jacket 1½ in. thick by 7 ft. high. Numbers 5 and 6 are furnished with 7 in. bronze tuyères that extend into the furnace one foot. No. 7 has a telescope arrangement for the tuyère, water-jacketed breast, and water block, all the parts being made of bronze, and so easily adjusted that there is very little delay in replacing them when necessary to make repairs.

Each furnace has four Massack & Crook hot-blast stoves 22 ft. in diameter and 70 ft. high. They are arranged in a line just north of and parallel to the line of furnaces. Two of each four stoves are "on wind" and two "on gas," the change being made every half hour in such a manner that there is a fresh stove "on wind" all the time. These stoves at present maintain an average temperature of only 1,250° F. to the hot blast; however, they have been in use but a few weeks, and it is unsafe to predict just what they can do under the most favorable circumstances. Their first cost is greater in proportion to their heating surface than those designed and built by Mr. C. H. Foote. There is some complaint in regard to the working of the valves of these stoves, but in time all this may be remedied and they may prove themselves entirely adequate to the work.

Directly north of the line of stoves is the stock yard. Here the coke, ores and flux are all handled in a very convenient manner. The coke is unloaded as needed from three rows of trestles placed parallel to the line of stoves, and back of these are three more trestles, from which the flux and ore can be unloaded when necessary. Usually the ore is unloaded directly from the boats on to the docks and taken to the hoists in barrows. It is handled at the docks by thirteen Brown hoisting and conveying machines having an aggregate capacity of 8,000 tons per 24 hours. A double hoist tower and hoist engine are placed between each second and third stove. They are the ordinary Crane hoists and each cage carries two barrows. The harbor was made by dredging, and is 2,600 ft. long by 150 ft. wide, with an average depth of 20 ft.

West of the furnaces are the boiler and engine houses. The former is 87 ft. × 291 ft., and has forty 6-ft. × 20-ft. horizontal, tubular boilers made by John Mohr & Sons, of Chicago. The water used in these boilers and around the furnaces is pumped from the lake and is remarkably free from sediment and other impurities that usually interfere with the proper working of a steam boiler. The engine house is 57 ft. × 250 ft. It is equipped with ten Southwark blowing engines, having steam cylinders 40 in. × 60 in., and six cylinders 89 in. × 60 in. The valves are of the regular Porter-Allen link motion. Two of these engines are held in reserve for contingencies, either one of which can be turned on to any furnace. In the pump house are eight compound, duplex Worthington pumps with steam cylinders 29 in. and 18½ in., water cylinders of 18 in. in diameter and a stroke of 21 in. The managers are especially pleased with the boiler, engine and pump equipment of this plant. West of the engine-house is the main water tank, which is 17 ft. deep and 40 ft. in diameter, and is supplied by means of three centrifugal pumps placed at the lake. In addition to the main tank there are four of smaller capacity so placed as to be convenient to the furnaces which they are to supply.

The ores smelted by this plant are of course the hematites of the Lake Superior region. They may be roughly classified as hard and soft ores. In making the mixture, about 15% of the former to 85% of the latter is mixed with a dolomite for the flux and coke for the fuel. More than one-half of the soft ore used comes from the Norrie mine. The richest ore will analyze about 62% Fe, and the poorest will not fall below 50% Fe. They show on an average about 1.30% SiO_2, ·021% S and ·09% P. The dolomite contains 1% SiO_2, 1% Al_2O_3, 53% $CaCo_3$, and 45% $MgCo_3$.

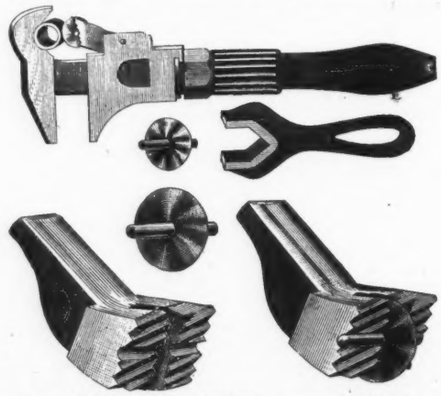
These furnaces are built for 300 tons make per day, but it is impossible to tell at present just what they will be capable of doing when they have been in blast for some time and are thoroughly tested. The oldest one has been in blast only six weeks, and it has already made 300 tons in 24 hours. It is probable that the four furnaces will some day produce considerably more than 1,200 tons daily, and that the South Chicago works will be making over 2,400 tons of pig iron every 24 hours.

Before concluding, we should say something about the method of handling the cinder and iron. The iron is run from the furnaces into ladles of 12 tons capacity each and taken by locomotives to the steel mill in the liquid state. The cinder is carried off by Werner cinder buckets and dumped into the lake before it has had time to harden.

The indications are that this furnace plant, which is under the direct management of one of the best qualified furnace men of the West, will soon be making a most enviable reputation. Furnace men should watch the progress of affairs at these works, for there are some valuable comparisons to be made. What the new furnaces, with their straight lines and thin walls, will be able to accomplish, is yet to be determined.

ENGINEER'S WRENCH AND PIPE CUTTER.

No tool is more in demand around the engine-room and workshop than the monkey wrench, and the next in importance is the pipe wrench and pipe cutter. In the accompanying cuts we illustrate a novel combination of the above mentioned tools. The pawls are arranged to accommodate the cutter, which is made of highly tempered steel capable of cutting all small-sized pipe. When the cutter is omitted, the tool may be used as as a pipe wrench, as the face of the pawl is cut to give the necessary friction. The wrench in this shape may be used with a ratchet motion. It being necessary in case of pipe-cutting, to have a strong leverage on feed screw, a separate hand wrench is packed in each set for this purpose, while for ordinary wrench work the feedscrew or regulator may be used as in the usual wrench. This tool is made in four sizes: 12 in., 15 in., 18 in. and 21 in., and pawls and cutters may be had separately. This wrench is being introduced by Tower & Lyon, of New York



AUTOMATIC STARTING GEAR FOR GAS ENGINES.

The ordinary method of starting a gas engine by turning the fly wheel until an explosion occurs involves considerable labor, especially in large engines. Various means have consequently been devised to render these engines self-starting, but they have not, as yet, come into general use. from the fact that they usually add to the bulk and expense of the plant, and are not in all cases to be relied upon to accomplish their object. Hence they are practically unknown in connection with the engines of moderate power. Mr. F. W. Lanchester has recently invented a self-starter, which has been adopted by Messrs. T. B. Barker & Co., of Bir-

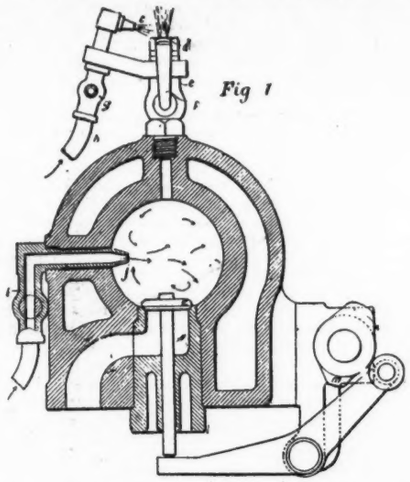


Fig 1

mingham, in connection with their "Forward" gas engine—says *Engineering*, to which we are indebted for the accompanying illustrations—which adds nothing either to the bulk or complexity of an engine, and which answers its purpose admirably, rendering the driver's work as easy as with a steam engine. The method of operation is extremely simple. Gas is allowed to blow into and through the cylinder until an explosive mixture is created within it, the condition of the mixture being judged by the color of the flame produced by allowing it to blow through an external pilot jet. At the right moment the gas is shut off and the flame strikes back through the blow-off cock, causing an

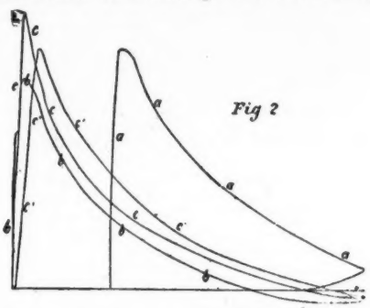


Fig 2

explosion which starts the engine. The back stroke of the piston exhausts the gases, and the next stroke draws in a charge in the usual way; it also sucks in the pilot flame through the blow-off cock, and fires the charge, the engine thus working non-compressively on the Lenoir cycle with an explosion every revolution. Under these conditions a speed of 120 revolutions per minute is gained in a few seconds. A certain speed, less than 120 revolutions, however, is needed to insure a compressed charge exploding in an incandescent tube. When the requisite speed is attained the blow-off is closed, and the cam set to exhaust every second revolution; the engine then works com-

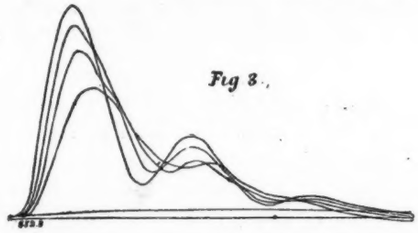


Fig 3.

pressively and fires its charge from the hot tube. In the diagram, *j* is the gas nozzle, *f* the blow-through cock containing a lightly loaded non-return valve which closes at the explosion. *d* the outlet, *c* the pilot flame, *h* the gas pipe, *e* the exhaust valve. *m* the exhaust cam. Fig. 2 is a facsimile of a diagram from a 7 H. P. nominal Forward gas engine (indicating 15 H. P.); *a* shows initial impulse given by a charge admitted by hand and timed by cutting off the gas; *b c c*^{1} shows a series of impulses in which the charge is admitted in the ordinary manner (through feed and gas valves), and automatically timed by the change in the motion of the piston. Fig. 3 is taken from the same engine, allowing it to run at a speed of 160 to 165 revolutions per minute without compression and igniting charges with above described starting gear.

THE MOFFET PORTABLE DRILL.

The Moffet portable drill is designed to fill a long felt want for a tool with which the slow and necessarily tedious work of the old-style ratchet drill may be overcome. This new drill consists of a rotary engine connected by gears to the drill spindle. As will be seen, in the accompanying illustrations, the mechanism is simple, consisting of an elliptical cylinder (Fig. 2) *XX*, inside of which revolves a hub containing six flanges or slides *M*; these are regulated by a fixed ellipse, on top and bottom plate, as shown by dotted line enclosing space *C*. The distance from outer edge of *C* to side of cylinder being equal at all points, the flanges are in con-

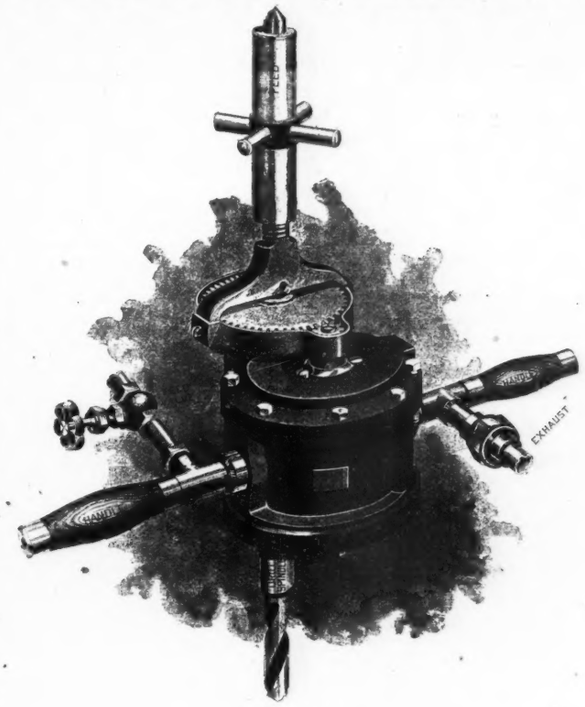


FIG. 1.

stant contact with the cylinder. Steam is admitted at *J*, thence through passage *E E*, exerting its force on the flanges *M*. *B* is the spindle on which the small gear is keyed, this gear in turn engaging with the driving gear *D D*; *H H* represent the exhaust ports leading to cored channels in top and bottom plates, and thence to *I*, the exhaust pipe; *F F* represent holes bored in hub for purpose of reducing weight.

The spindle *B* is inclosed in packing through top plates as is a piston in a reciprocating engine. The drills are made in two sizes, the larger

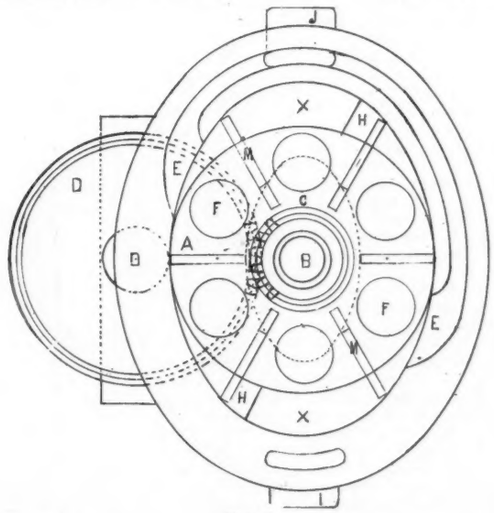


FIG. 2.

adapted for drilling from ⅝ in. to 1¼ in., either in wrought or cast iron. The large drill has a total weight of 42 lbs., and is equipped with feed screw. The small drill has a weight of 20 lbs., and differs from larger size in one feature only, *i. e.*, it does not have a feed screw, for which a breast plate is substituted. This drill is adapted for work up to ⅝ inch.

The pressure required for successfully operating this machine is about 45 lbs., and with this force it is claimed that the drill will show working effect equal to any drill press. The drill may be operated by either steam or compressed air. The speed may be regulated by feed screw and steam valve. It may be operated in any position, either vertically, or horizontally. This machine is made by C. H. Tucker & Brother, of New York.

ON THE IMPROVEMENT OF ORE BODIES WITH INCREASING DEPTH.

Written for the Engineering and Mining Journal by Frank L. Nason.

Among men little experienced in mining, and who have little or no knowledge of the principles of geology, there is no dogma more tenaciously held than this: That a prospect, however poor at surface, will improve with increasing depth. On the other hand, among men of wide experience, this idea is one of the first that is cast aside as a snare and a delusion. Yet practical miners and geologists agree upon one exception—that vein deposits may, by the subterranean coalescence of several veins, become enormously developed. In the case of well defined beds, however, such as coal or iron, the possibility of such a development is cast aside as hardly worthy of a second thought. In other words, in accordance with the above dogma, a "fissure vein" would be followed as long as it was possible to trace it, while a bedded deposit would be abandoned almost at the first pinch. In this paper it is proposed to discuss the above proposition under two heads: 1st. Is it possible for a bedded deposit to increase with depth? 2d. Are there any means of determining whether or not this increase or thickening has taken place in a given deposit?

Before entering upon the discussion of the first question, let us refresh our minds a bit on the principles of the deposition of sedimentary rocks. It must be remembered that sedimentary rocks are deposited by water, (a) as shore deposits by the wash of waves in wearing away the bounding rocks; (b) as detrital matter carried by rivers and deposited in lakes or seas at the mouth of the river, and (c) by the combined action of river and wave. In the case of iron ores, some limestones and other deposits of a kindred nature, another possible source of origin suggests itself; that is, chemical precipitation. In all of the beds thus formed there is a general but not a perfect parallelism to the plane of the horizon.

Another question suggests itself: What would be the extent of the beds thus formed? Let us confine our attention to iron ores (as this is really to be the main point at issue). If the iron-ore beds are primarily formed as beds of magnetite derived from the breaking up of the rocks bounding lake, sea or river, the width of the bed must depend upon the strength of the current; its length, upon the extent of the rocks supplying the detritus. It would thus follow that along a sea shore where the sea was wearing away a ferruginous rock the material would be spread according to its specific gravity; the light material would be carried far out to sea, the sand or silica would reach next farthest, while the heavy magnetite and other heavy but rarer minerals would be left as a comparatively narrow band along the shore. In narrow bays or inlets the surrounding rocks on three sides might form a bed many feet or rods in length and breadth. A rapid stream entering a small bay might produce the same effect. This is, however, assuming much about the topography of ancient lands when but little is known; so it is but fair to assume that iron-ore beds might have been derived from chemical deposition as well as from waterworn detritus.* The presence of phosphoric acid, in some cases amounting to as much as 20%, and of graphite, would seem to favor his view.

Without going into details as to the origin of the iron held in solution, let us see how chemical deposition of iron would manifest itself. It is evident that in the case of chemical deposition the chalybeate waters would reach much farther than if the iron were carried by currents as detrital matter. The law of diffusion of liquids of different specific gravities would come in play, the solution of iron would become diffused and precipitation would take place over a much larger area. In rapid water, or in water subject to tidal action, the iron in solution, though it would certainly be precipitated in the end, would be widely scattered and thus never be of economic value. Hence it would follow that chemical deposition of large iron-ore deposits must take place in quiet waters, such as lagoons, tideless gulfs and bays, or in lakes. It may thus be seen that great iron-ore deposits may be formed limited only in length and breadth by the extent of the quiet water.†

The substance of what has been said with regard to the deposition of iron ores may be summed up in this general statement: Iron ores that were originally deposited in the form of magnetic iron sand would be likely to be found in long narrow bands, lenticular in cross-section, while chemically deposited iron would tend to be deposited in the form of large beds of even thickness.

Let us omit the steps by which the iron ores and the overlying and underlying sands are changed to solid rocks and are crumpled and folded up and consider what effect this crumpling will have on the ore bodies. From the comparatively regular folding of the older crystalline rocks it is safe to assume that this has been accomplished by a series of lateral thrusts. The direction of the folds in the Appalachian mountain system, with but few exceptions, is N. E. and S. W., with a dip or underlay to the S. E. In other words this lateral thrust has folded the rock strata, including all ore bodies, into anticlinal and synclinal folds or in troughs and ridges.

In this folding of thick beds at certain points tension, which would tend to thin any given bed, would occur; at other points compression and a consequent thickening would follow. It is evident that tension would occur on the slopes or the sides of the fold and that compression would occur on the crests or ridges and in the hollows of the syncline. In other words the thickest beds would occur on the crests and in the hollows; the thinnest on the sides. In looking for the development of an ore body, therefore, search should be made for these two points.

It will not be necessary to discuss methods of search in case of anticlines, for even in the youngest rocks the crests have, in the majority of cases, been swept away by erosion, and with these crests their bedded deposits. In the synclinal trough or fold, therefore, will be found the heaviest deposit. The increase in size of the deposit will depend upon the size of the original bed and upon the amount of compression. Neither of these factors is exactly determinable. Folds or thickening on the slopes may take place in ore bodies under certain conditions. For example a bed of iron ore will present less resistance to a crushing force than its enclosing rocks. The parting between the ore body and the rocks must of necessity then be readily effected. The bed of overlying rock might be thrust with a motion greater than the rock underlying the ore body. A superficial fold would then be formed of considerable magnitude and wholly independent of the compressed body in the bottom of the synclinal trough.

From the foregoing paragraphs it will be seen that there *is* a foundation for the belief that even a bedded deposit may increase in size with increase in depth. It will also be seen that hints as to whether increase in size has actually taken place in a given deposit must depend entirely upon the interpretation of geological data.

This brings us to the second part of our discussion as to whether there are any means of determining whether or not increase or thickening has taken place in a given deposit.

Bearing in mind that the points of compression, and hence of thickening, are the axes of the folds, it becomes at once apparent that a careful working out of geological data must be accomplished in order to determine the position of such folds. The first point to be determined accurately is the dip or underlay of the foot wall, the hanging wall, and of the ore body. In doing this the utmost care must be exercised, for even in the most regular mines the walls roll and plunge in the most irregular manner. A dip in one place might read nearly 90°, and but a short distance away fall to 15° or less. This is really no exaggeration, for in many mines the foot wall resembles a series of steps. The same may be true of the hanging wall, though the foot and hanging walls of a mine are nearly exactly parallel.

In practice in searching for lost ore bodies from 50 to 100 observations on the dip have been made by the writer. The results of all these observations are added altogether, and the sum is then divided by the number of observations. The dip of the hanging wall and of the ore body is determined in the same way. The average of the three results is taken as the dip or underlay of this particular locality.

The next point to be determined is the *pitch* or the angle at which the cap rock of the ore body goes underground.‡

These points, carefully taken, will enable the geologist to lay out on a map, with a high degree of probability, the direction in which another ore body or a continuation of the given ore body should be looked for. The above data will also give the direction in which a synclinal trough must lie.

The next point to be determined is whether or not the same rocks appear on the opposite side of the valley. In case such rocks do appear their dip is also to be carefully noted. If the opposite rocks dip against the given ore body a synclinal fold is at once proved and the point of search and the probable depth to which search must be made are then a matter of quite easy calculation. The distance from outcrop to outcrop is measured and the middle point determined. The outcrops are then to be plotted, the horizontal line connecting them is drawn, and, from these outcrops, lines are drawn at the angle of the respective dips.

It will be readily seen that in the case of rocks dipping against each other these lines will intersect below the horizontal line. This point will represent the maximum depth below the surface of the lowest point of the syncline.

Rocks, however, do not bend at sharp angles and it will be safe to assume a curve instead of the angle, and this will of course throw the point of maximum depth much nearer the surface.

In case of the rocks at the mine and on the opposite side of the valley dipping in the same direction, the work of the geologist is materially increased. Such a state of affairs indicates, first, a monoclinal structure, where the rocks, instead of being folded, are broken and all inclined in the same direction and usually at the same angle; or, second, that in the process of folding the anticlines were pushed over, thus forming what are technically known as overthrow anticlines. The synclinal valley would in such a case be represented by the letter "*U*," while the normal cross-section would be represented by "U."

Obviously the first point to be determined in a case like the above is whether the structure is monoclinal or an overthrow synclinal. In case examination proves a monoclinal there is no use in further prospecting, for folding has not taken place and consequently no thickening unless there is a large secondary roll on the slope. In this case, however, one has practically to deal with folded strata and it should be treated in the same way as anticlinal or synclinal folds generally.

If further examination shows that the structure is an overthrow anticlinal, the trough will then be in the shape of the letter "*U*." To determine the bottom of the trough of the syncline, the same method is resorted to as when the rocks dip against each other. The horizontal distance between two outcrops is measured off and laid out on a map. The lines representing the dips of the two outcrops are also laid off, but in this case instead of intersecting they are parallel or nearly so. It is obvious, however, that these two lines must eventually curve toward each other at some depth.

This depth, however, can only be approximated. The estimates as to the depth of the bottom of the trough must be based on the angle of the dip of the rocks and on the width of the valley from outcrop to outcrop. The depth will rarely be deeper than the estimate, if carefully made, and it may be much less if there are secondary folds between the points of observation. These folds may exist and, owing to drift, give no surface indications.

Having determined the trough a diamond drill is set at work and the hole should be sunk vertically to the point of limit of profitable working before the hole is abandoned, unless, of course, the ore body is struck before. I have laid particular stress upon a vertical hole. The reasons are obvious. A drill will work much more freely vertically than at an angle, when the friction of the drill rod resting on the rock for its entire length must be overcome.

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* It may not be out of place in a foot note to state the writer's belief that in both of these ways iron-ore beds may have been formed, especially magnetic ore beds. In fact, the presence of rutile, menaccanite, and other heavy titaniferous minerals in some ore bodies and the presence of phosphorus in others, seems to point strongly in this direction. For it is a well-known fact that a titaniferous ore is rarely phosphatic and vice versa.

† Chemical deposits of iron ore form to-day and in some of the Scandinavian districts dredging is actually carried on to recover the ores thus formed. Let a trap or granite or other ferruginous rock be exposed to the action of decomposing vegetable or other organic matter, magnetite, hematite, hornblende, pyroxene and other iron-bearing minerals will become decomposed and their iron reduced to a soluble form. Percolating waters will dissolve out these soluble salts and carry them to lakes or ponds. Here the chalybeate waters exposing a large surface to the air, the iron will become oxidized to the insoluble form and will sink to the bottom and thus give rise to iron ores or limonites. It can easily be imagined how these ores could be buried by other sediment and later on be changed to hematites or magnetites.

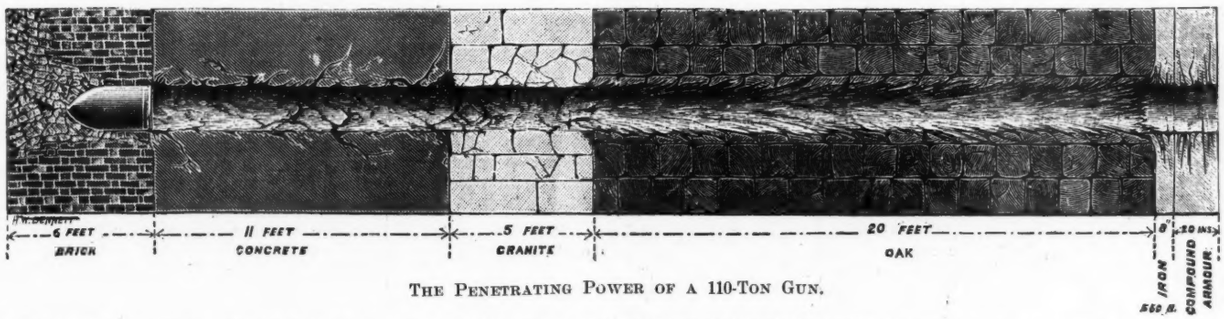
‡ To give an exact idea of what is meant by pitch and dip, it may be said that in the magnetite and zinc mines of New Jersey and New York, the dip or underlay is generally to the southeast, while the pitch carries the ore body to the northeast.

There is one more point, however, to be determined before a drill is set at work. The mine itself should be thoroughly examined to see if there is any promise of the continuance of the ore body. It is a fact, not generally recognized, that there is a decided difference between the country rock of a mine and the mine rock proper.* The mine rock and country-rock are usually lumped together under the term "rock." When the ore body shows signs of pinching out it should be carefully determined whether the pinch is due to *country* rock or *mine* rock. This distinction is only to be learned by careful study. If the walls of the pinch are proved to be country rock and the ore body is entirely cut out by this closing in, then it is conclusive evidence that this particular ore body is exhausted, and if another deposit is found it will practically be independent of the old body, though it will be found in the manner described in the foregoing text. If, however, in working the pinch only mine rock shows itself, with or without a leader of ore, the mine ought never to be abandoned as exhausted without testing it thoroughly in the manner pointed out.

In conclusion, then, it may be stated that there *is* a ground for the belief that a bedded deposit may increase in size, under certain conditions, and that a careful study of the geology and mineralogy of a mine will enable an expert to predict with a high degree of certainty whether or not such thickening has taken place. It is also true that a careful study of the geological data will almost infallibly guide the searcher to other deposits if such exist, and if, after a reasonable amount of prospecting, no new deposit is found, the mine can then, and only then, be safely abandoned as exhausted.

THE PENETRATING POWER OF A 110-TON GUN.

The accompanying illustration is reduced from a diagram exhibited by Messrs. Armstrong, Mitchell & Co. at the recent naval exhibition in London, to show graphically the power of a 110-ton gun. This gun fires a 1,800-lb. projectile with 960 lbs. of powder, and has a muzzle velocity of 2,105 ft. per second, the total energy being 55,305 foot-tons. The drawing shows the course through a target of a projectile fired from H. M. S. Sanspareil's 110-ton gun on March 14, 1891. The shot met first of all a 20-in. compound plate. At the back of this was an iron backing plate 8 in. thick, which was fastened to a heavy wrought-iron frame. Beyond was built up a structure consisting of solid oak balks. These occupied a thickness of 20 ft. Next came 5 ft. of granite, and beyond



THE PENETRATING POWER OF A 110-TON GUN.

that was 11 ft. of concrete. Finally there was 5 ft. of brickwork. The shot struck fairly in the center of the plate, traveling at a velocity of 2,079 ft. per second. It went through both plates, then in turn through the 20 ft. of oak, the 5 ft of granite, and the 11 ft. of concrete, and was finally brought up by the bricks at the end, although it forced out a large wedge of brickwork and almost got through.

HOW MOUNTAINS WERE MADE.

Foremost in their geographic importance, and in the intricacy and significance of their geologic structure and origin, says Warren Upham in the *Popular Science Monthly* for September, are the mountain belts which consist of folded rock formations. The strata forming the upper part of the earth's crust are bent up and down in long, nearly straight or curving, wave-like ridges and troughs, and where their disturbance was greatest the successive ridged folds are closely pressed together. The waves of the rock structure are then pushed to such steepness that their sides become parallel with each other, and the entire fold is driven forward into an inclined position. The order of the strata on the lower side of the appressed fold is thus inverted; the originally highest and last formed deposits there lie beneath older beds, in an overturned series. Subaerial erosion then wears down the undulations and the crests of the closely folded strata, often planing them off until a long section, crossing mountain ranges, passes from older to newer beds, and onward from newer to older, in several alternations, having throughout the whole a nearly constant steep dip.

Owing to the interbedding of hard and enduring sandstone, quartzite, gneiss, and other rock formations, with more easily eroded limestone, shales, incoherent sandstones, or schists, the erosion commonly produces a new topography, making hollows and long valleys where the more erosible beds have been removed, and leaving ridges and mountain ranges of the harder rocks. More than this, when erosion has been continued through very long periods, it tends toward the ultimate result of removing the upward curved or anticlinal portions of the great folds and sparing the originally lower downward curved or synclinal portions, until valleys take the places which were originally occupied by the highest upheavals, while the original troughs, where the rocks were most compact by pressure, remain now as the principal mountain ridges. Under denudation, the folded mountainous belt fulfils the prophecy, "Every valley shall be exalted, and every mountain and hill shall be made low.'

* For a full discussion of this point see writer's paper on "Rocks Associated with Iron Ores," *Ann. Rep. State Geologist of Geological Survey of N. J.*, 1890, pp. 72 and 78.

SPEEDY COMPUTATORS.

We gave in the ENGINEERING AND MINING JOURNAL of Aug. 15, 1891, the various formula applying to pump calculations, with the methods of solving them by means of the Mannheim slide rule. Mr. Wm. Cox, C. E., the writer of the article in question, has recently invented an indicator which consists of a suitably graduated dial, made to revolve on a similarly graduated foundation plate, by means of which all these calculations may be instantaneously solved. Another indicator, devised by Mr. Cox, gives in a similar manner the horse power of a steam engine with the steam cut off at any portion of the stroke. Not only do these indicators give these results, but all the various combinations which produce them are at once shown. These indicators will be found very useful by the engineer who has many such calculations to work out. They are manufactured by the Keuffel & Esser Co., of New York, which has secured the sole right to supply them.

The Expansion of Phosphorus by Heat.—According to A. Leduc, (Comptes Rendus, cxiii, 5), phosphorus expands almost regularly up to the point of fusion, which is at 44·2°C, of the mercurial thermometer, and consequently at 44·1°C, of the normal thermometer. He has followed the expansion of the liquid phosphorus up to 50°, and then down to 26°, at which it solidified.

Dahmenite.—Messrs. Dahmen & Co. are erecting works at Schwerin, near Kastrop, Germany, for the manufacture of dahmenite, a new explosive discovered about two years ago. Dahmenite is claimed to be the most powerful explosive yet put upon the market and at the same time the cheapest. It cannot be fired by impact or any ordinary change of temperature and only by means of a specially produced and very intense, pointed flame.

The Electric Lamps in the Frankfort Exhibition were lighted for the first time by electricity transmitted from the generating center at the Lauffen Falls, of the Neckar, on the 25th ult. The distance from the Falls to the city is about 108 miles. The electromotive force at the Falls is 25,000 volts, and about 300 H. P. is transmitted. The installation was made by the General Electricity Company of Berlin and the Oerlikon Machine Works, of Switzerland.

Separation of the Halogens.—Mr. Matthew Forbes writes to the *Chemical News* that in studying the halogens some time ago he found that by putting $KI + MnO_2 + C_2H_4O_2$ into a test tube and slightly heating, free iodine was liberated, and that $KBr + MnO_2 + HNO_3$ slightly heated yielded free Br. He then put together a crystal of KI, KBr and $NaCl + MnO_2 + C_2H_4O_2$, and slightly heated, and obtained free iodine. After driving it all off he added a little HNO_3, and upon heating obtained free bromine, which was driven off also, then *cooled* the tube and cautiously added H_2SO_4, and heated, when free chlorine came away, known by smell, color and bleaching of moist litmus. The experiment is interesting, he says, from the fact that it is held that these three elements cannot be recognized in the presence of one another.

PATENTS GRANTED BY THE UNITED STATES PATENT OFFICE

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office.

TUESDAY, SEPT. 8TH, 1891.

458,996. Means for Regulating the Draft in Smoke Stacks, William Bullock, Cleveland, Ohio.
459,023. Process of Extracting Antimony from Ores. Curt Schreiber and Haas Knutsen, Broken Hill, New South Wales.
459,028. Steam Boiler. George Warrington and James N. Warrington, Chicago, Ill.
459,031. Process of Recovering of Tin from Waste Tin Plates. Jean M. G. Bonnet, Paris, France, Assignor of two-thirds to F. Maurice Sallinger and Joseph Bernheim, Chicago, Ill.
459,035. Air Space Covering for Steam Pipes, Boilers, etc. Joseph P. Costigan, Minneapolis, Minn., Assignor of one-half to Thomas M. Valleau, Brooklyn, N. Y.
459,048. Process of Casting Steel Car Wheels. William G. Richards, Boston, Mass., Assignor to the American Steel Wheel Company of New Jersey.
459,064. Coke Oven. Arthur M. Chambers and Thomas Smith, Thorncliffe, England.
459,084. Oil Feeding device for Journals. William Thomson and George Thomson, Shaw, County of Lancaster, Assignors to John Greenwood & Company, Limited, Hope Mill, England.
459,085. Endless Cable Haulage Grip. Thomas J. Waters, Westport, New Zealand.
459,092. Power Hammer. Charles A. Vaughn, Brooklyn, N. Y., Assignor of one-half to F. J. Schmitt & Co., Newark, N. J.
459,099. Oil Filter. Charles Porter, Dover, N. H.
459,102. Forming Sand Beds for Molds. Stephen J. Adams, Pittsburg, Pa.
459,103. Sand Mold. Stephen J. Adams, Pittsburg, Pa.
459,193. Process of Making Ammonia and Gas. Alphonse Hennin, Springfield, Ill., Assignor, by direct and mesne assignments, to the Hennin Process Company, of Illinois.
459,197. Centrifugal Machine. William Bodge, Brooklyn, N. Y.
459,267. Centrifugal Concentrator for Minerals, etc. Thomas Clarkson, of London, England, Assignor to the Clarkson-Stanfield Concentrator, Limited, same place.
459,315. Centrifugal Separating Machine. Richard Stanfield, Edinburgh, Scotland, and Thomas Clarkson, London, England, Assignors to the Clarkson-Stanfield Concentrator, Limited, London, England.
459,318. Method of Making Pipe Connections of Weldable Material. Wilhelm Thielman, Styrum, near Mulheim, Germany, Assignor to Thyssen & Company, same place.

PERSONALS.

Mr. E. Z. Wallower, of Harrisburg, Pa., is in Joplin, Mo , looking after his mining interests.

Mr. Enoch Kenyon has been appointed manager of the Ni-Wot & Madeleine, Limited, Ward, Boulder County, Colo.

Thos. M. Cooley, chairman of the Interstate Commerce Commission, has resigned his office on account of ill health.

Mr. C.M. Dobson, mining engineer, of New York, has gone to London on professional business. He will be absent a month or six weeks.

Mr. James Campbell, St. Louis, president of the Gold King Mining Company, has been visiting the mine of that company, near Telluride, Colo.

Mr. F. R. Miller, of Denver, Colo., has been elected treasurer of the Diamond B. & Idalia Mining Company, vice Mr. J. M. Fisher, resigned.

Mr. Chas. E. Taylor, of Taylor & Rathvon, Denver, Colo., has returned to his home from Boston, where he has been visiting for some time past.

Mr. J. B. Shearn, a well-known coal operator and general superintendent of the Hillman Vein Colliery at Wilkesbarre, Pa., is missing from his home.

Mr. Chas. N. Perkins, of Denver, Colo., manager of the Little Rule Mining Company, has returned from a visit to the East, where he has been on mining business.

Mr. L. Sternberger, of Philadelphia, who is largely interested in the Pennsylvania Mining Company, of Colorado, is visiting that State, on mining business.

Mr. J. M. Calkins, manager of the clearing house of the Colorado Mining Stock Exchange, Denver, Colo., has resigned, and Mr. D. H. McLelland has been appointed in his place.

Mr. Franklin Farrell, of Ansonia, Conn., president of the Parrot Silver and Copper Company, as been visiting the San Juan district, Colo., studying its copper resources.

Mr. Franz Fohr of New York, formerly superintendent of the Harrison Reduction Works, Leadville, Colo., is visiting Denver, Colo., whence he proposes to go to the Salmon River Country, Idaho, and the Yellowstone Park.

Mr. Genery Hillman has been appointed superintendent of the Alice furnaces, Birmingham district, vice Superintendent Reis, resigned. Mr. Reis has accepted a position as superintendent of a furnace at Middlesborough, Ky.

Messrs. L. L. Culver, president of the Mickey Breen Mining Company, of Colorado, and Paul Fusz, president of the Bi-Metallic Mining Company, of Montana, are visiting Ouray, Colo., looking after their mining interests at that place.

Sir Archibald Geikie, Surveyor-General of the Geological Survey of the United Kingdom, has been elected president of the British Association, for the current year. The 1892 meeting will be held at Edinburgh and that of 1893 at Nottingham.

Joseph A. Edwards has been appointed receiver of the Talladega, (Ala.) Iron and Steel Company, Mr. Montgomery, who was recently appointed temporary receiver at the instance of the Pocahontas Coal and Coke Company having been dismissed, as the latter company's claim has been satisfied. It is now reported that the Talladega Company's affairs will shortly be settled and the furnaces started up.

OBITUARY.

George Snell, an old-time California miner, died in Nevada County, Cal., on the 2d inst.

George G. Hannan, president and general manager of the Norway Track Company, of Wheeling, W. Va., died on the 31st ult.

Chester D. Hubbard, of Wheeling, W. Va., died on the 30th ult. He was one of the best known manufacturers in the United States, and was president of the Wheeling Iron and Nail Works for many years.

Alonzo Sawyer, Federal Judge of the Northwestern District of California, died in San Francisco, Cal., on the 7th inst. He had tried many important mining cases and was well known on the Pacific Coast.

Edward Augustus Wild, late of Brookline, Mass., died recently at Medellin, Columbia, South America, at the age of 66 years. After graduating from Harvard College he studied at the Law School, and subsequently at the Jefferson Medical College, Philadelphia. He was a medical officer in the Turkish Army during the Crimean War, and at its close was awarded a medal by the Turkish Government for his services. He served through the Civil War in this country, rising from the rank of captain to that of brigadier-general. He was largely interested in mining enterprises in the last portion of his life.

SOCIETIES.

The annual convention and exhibition of the National Electrical Association opened in Montreal, Que., on the 7th inst.

The Western Pennsylvania Mining Institute met at Monongahela City on Saturday, the 5th inst. Colliery ventilation, pumping and underground haulage work were discussed.

The Committee on Organization of the National Association of Government Geologists held a meeting in Washington on the 29th ult., at which the secretary, Mr. Arthur Winslow, was instructed to draft a constitution and by-laws to be submitted to the committee at a meeting to be called in connection with the annual meeting of the Geological Society of America in December next. The Secretary was further requested to notify all state geologists of this movement toward organization, and to invite them to be present at the next meeting.

INDUSTRIAL NOTES.

The Penn Iron Works, at Lancaster, Pa., have resumed work, after ten weeks' suspension. They give employment to 300 men.

Fraser & Chalmers, of Chicago, have been awarded the contract for the machinery of the new De Lamar mill, at De Lamar, Idaho.

The Milwaukee Bridge and Iron Works, Milwaukee, Wis., were sold at public auction last week by Assignee Townsend to Julius G. Wagner, for $30,000.

The Norristown Steel Company, of Norristown, Pa., made its first heat of steel by the Adams-Blair process on the 4th inst. The operation was entirely successful.

The Youngstown Bridge Works at Youngstown, O., built two years ago, were entirely destroyed by fire on the 4th inst. The loss is said to be $75,000; insurance, $55,000. It is reported that the works will be rebuilt at once.

F. R. Phillips, of Philadelphia, has been awarded a contract for furnishing the United States mints with rolling mills for rolling silver, the last furnished being entirely satisfactory. The rolls were formerly furnished by Krupp, of Germany.

A story was current last week in Pittsburg, Pa., that Mr. Henry Phipps had sold out all his interest in the Carnegie concerns and intended to reside in England. Mr. H. C. Frick, in speaking of the matter, said: "There is no truth in this story. About three years ago Mr. Phipps sold one-third of his interest in our concerns. Since that time he has made no further change in his investments with the Carnegies."

Several iron and steel manufacturers of Pittsburg, Pa., are making arrangements to use coal, fuel gas or crude petroleum under their boilers instead of natural gas. Among them are the Braddock Wire Company, which will use coal; Shoenberger & Co., and Howe, Brown & Co. The two latter concerns are testing the merits of crude petroleum. The O'Hara Glass Company is also preparing to use petroleum.

The Southern Equipment Company, of Chattanooga, Tenn., reports that during the month ending September 5th, sales made to various concerns in the surrounding states have aggregated $3,800.00. This concern has found it necessary to increase its entire plant, and is now located in new buildings, which allow of a better display of the large line of goods carried by it, and also give better storage facilities.

The American Tin Plate Company, organized for the purpose of manufacturing tin plate and sheet iron, near Elmwood, Ind., has been incorporated under the laws of Indiana, with a capital of $300,000. The directors are A. L. Connor and W. S. McDonald, of Akron, O.; M. Sieberting and W. B. Leeds, Kokomo, Ind.; P. G. Reid, Richmond, Ind.; John T. Hosen, Cincinnati; and James L. Overman, Elmwood.

The Salt Lake Stamping and Tinware Company has been organized in Salt Lake City, Utah., with a capital stock of $100,000 to manufacture tinware. The officers of the company are as follows: W. D. Woodbury, president; Joseph Jacobs, vice-president; Geo. Sherman, treasurer; J. N. Simpson, secretary and general manager. The company will employ between 75 and 100 men.

The Pennsylvania Plate Glass Company, of Irwin, Pa., turned out its first finished plate on the 2d inst. The factory buildings cover 5½ acres and have a capacity of 1,250,000 sq. ft. of glass per annum. It is proposed to manufacture plate glass of as fine quality as is made in France or Belgium. The company will employ 500 men. Its capital stock is $1,000,000, owned principally by New York capitalists.

The Mahoning Valley Iron Company, of Youngstown, O., has leased the entire plant of the Wheatland Iron Company, at Wheatland, Pa. For some time the company has been unable to secure sufficient muck bar to fill its orders, and it will at once start the puddling department in the plant of the Wheatland Iron Company, and will operate it until such time as the contemplated improvements at its present plant at Youngstown can be made.

The Pennsylvania Steel Casting Company has just cast an immense Bessemer steel rim, 15 ft. in diameter, weighing in the rough 24,000 lbs. The steel was blown under the personal supervision of Superintendent Stewart Johnston, and tests already made show it to be entirely satisfactory. The rim is intended for the driving wheel of the engine now building by the Robinson-Rea Manufacturing Company for the additions to the plant of the United States Iron and Tin Plate Manufacturing Company, at Demmler, Pa.

The H. Ward Leonard Company of New York has issued a small pamphlet entitled "How to Purchase an Electrical Plant," calling attention of those considering the purchase of electrical apparatus to the manner in which it can be of assistance. "The rapid advance in electricity," it says, "makes it impossible for any person outside of those in the electrical profession to keep even tolerably informed on the subject; . . . those having the experience are generally employed by an electrical company, and unable to give an unbiased opinion." The object of the H. Ward Leonard Company is to advise would-be purchasers from an unbiased standpoint, to make estimates and superintend construction. This is practically a step in a new direction in this country, and will fill a long felt want.

SOUTHERN INDUSTRIAL NOTES.

(From our Special Correspondent.)

R. D. Smith & Co.'s Trussville furnace, Birmingham, Ala., blew in on the 2d inst.; it closed down on December 24th, 1890, on account of the extremely low prices of iron. Since then many improvements have been made; the furnace, stacks and stoves have been relined, new boilers put in, a new 50-ton locomotive purchased, etc. The ore for it will come from the new mines of Smith, Reid & Co., distant about 2 miles from the furnace, and the coke from the firm's works at Bradford. The Thomas No. 1 furnace, which was mentioned in a recent issue as having made such a fine run, has also blown in; it is intended to make a run of four years, which at the rate of production for the last three years' run will give it an output of 160,000 tons.

MACHINERY AND SUPPLIES WANTED AT HOME AND ABROAD.

If any one wanting Machinery or Supplies of any kind will notify the "Engineering and Mining Journal" of what he needs, his "Want" will be published in this column.

Any manufacturer or dealer wishing to communicate with the parties whose wants are given in this column can obtain their addresses from this office. No charge will be made for these services.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning American goods of any kind, and forward them catalogues and discounts of manufacturers in each line, thus enabling the purchaser to select the most suitable articles before ordering.

These services are rendered gratuitously in the interest of the subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GOODS WANTED AT HOME.

2,376. Electric light plant for street and commercial lighting. Mississippi.

2,377. Steel rails, railway equipment, drawbridges, and creosote piling. Florida.

2,378. A new improved 10-spout wheat drill. Virginia.

2,381. A pump to deliver 100 gallons per minute, 125 ft. elevation and one-half mile distance; also a plunger pump of about 2,500 gallons per hour capacity, or other type that will handle dirty water. South Carolina.

2,382. Washing and pulverizing machines for roots similar to potatoes. Illinois.

2,383. Saw mill machinery. North Carolina.

2,384. Two batteries of boilers, 125 h. p. each, a 200-h. p. engine, shafting, pulleys, and belting; also a full line of boiler makers' machines, punches, shears, tools, etc. Virginia.

2,385. An air compressor with steam eye, about 18 × 20 in., to maintain 60 to 100 lbs. pressure of air, and 60 to 80 lbs. of steam. Illinois.

AMERICAN GOODS WANTED ABROAD.

2,379. Rosin, oil of turpentine, and any other raw products for the manufacture of varnishes. Canada.

2,380. Machinery for a small paint factory, exclusive of motive power. Canada.

GENERAL MINING NEWS.

A suit has been brought in the circuit court of Monongalia County, W. Va., involving the title of over $3,000,000 worth of oil lands lying in it and adjoining counties in Pennsylvania and West Virginia. The suit was brought by W. S. Stevenson and others against the South Pennsylvania Oil Company, abranch of the Standard, and Ira Dewitt. The land consists of nearly 110,000 acres and has 500 producing wells on it.

TENNESSEE COAL, IRON & RAILROAD COMPANY.—The output from the mines at Tracy City for the month of August was 35,988 tons. Total for this year to date, 258,080 tons. Shipments for August were: Coal, 16,086 tons; coke, 11,975 tons; total, 28,061 tons. Shipments for the first eight months of this year are as follows: Coal, 132,937 tons; coke, 81,668 tons; total, 214,605 tons.

ARIZONA.

COCHISE COUNTY.

COMET.—From this mine, which is opened up on two levels, the output during the past year has averaged 650 tons a month; at the present time, however, it is running nearly 700. The 150-ft. level has been drifted on north 300 ft. and south 600 ft. from the shaft; 300 ft. level, 550 ft. north and 800 ft. south. The ledge has a north and south strike, and dips 70° west. The vein has a porphyry hanging and limestone footwall. On both levels, but especially the lower, the ore has been somewhat bunchy. The carbonate ore assays from 20 to 30 oz. silver per ton and above 20% lead. An analysis of the ore shows 13% manganese, 3% iron, and 14% silica.

TOMBSTONE MINING AND MILLING COMPANY.—The face of the north drift on the water level (490 ft.), of the Lucky Cuss mine, is now 250 ft. from the shaft and is within 30 ft. of a chute of manganese ore that has been worked from the 5th level to the surface. The southeast cross-cut face on this level is now in 80 ft. and within 40 ft. of the ledge, where it will crosscut at water level a large chute of manganese ore, that on the 5th level and above was of shipping grade. The 6th level of the West Side mine, which is being driven northeast on a strong low-grade ledge, is now within 400 ft. of the main Toughnut shaft. A drift is also being run from the West Side 4th level to the Girard. On the Sulphuret prospecting continues. An upper drift, 50 ft. from surface in the Northwest mine, is being run toward the main Toughnut shaft, which it will tap on the 100-ft. level. A force of 103 men is now working in these mines: Lucky Cuss, 45; West Side and Sulphuret, 25; Northwest, 17; Toughnut, 10; general, 6; and 31 more are working at the Millville slag dump. The July output was 440 tons of ore and the August output 450 tons.

YAVAPAI COUNTY.

CROWNED KING MINING COMPANY.—This company has several hundred tons of concentrates which must be carried out by burros to Prescott during the next few weeks. The need of a railroad to the Bradshaw Mountain district is felt more and more every day.

DEL PASCO.—This mine, with a mill of only 4 stamps, has made an excellent record this summer under the management of Superintendent J. Liston. The mill, despite its altitude, will, it is said, keep its stamps in motion all winter.

ORA BELLA.—This mine is preparing to start 10 stamps of its mill shortly.

TIGER MINING COMPANY.—The Tiger mine is again in operation and after months of pumping and development work is producing the ore of the kind which made the mine famous in the early days of the great Tip Top excitement.

CALIFORNIA.

The San Francisco *Journal of Commerce*, in a review of the mining industry of California for the first six months of 1891, says: The condition of the gold quartz mining industry in California is fairly prosperous. It is pretty certain that the yield of gold will in future increase rather than decrease. If, at any rate, the yield does not become greater, the profits will be larger because of the improvements in methods which have been adopted. Quartz which ten years ago could not be handled is now worked at a profit, and mines that were abandoned have been again worked. In fact many mines which have lain idle for years are now being actively developed. The very general introduction of water power in place of steam has had much to do with this cheapening of the cost of working the ores. Now, too, there is a growing tendency to use electricity as the power at the mills, utilizing streams at some distance from the mines for the original power for the dynames. We are now able to work ores in this State more cheaply than at any place in the world; so cheaply that the quartz mines become every year more valuable. The gravel mines continue closed as far as hydraulic mining is concerned, but very many are being worked by the drift process. These drift mines, it requires considerable capital to open and handle, and as a result the gravel deposits have fallen largely into the hands of capitalists. The upper and northern portion of the State has attracted more attention of late years, though the center of the mining industry continues to be in Nevada and Amador counties. In Siskiyou and Trinity counties blue gravel in large quantities has been found, and great hopes are entertained that the deposits are of as good grade and as rich as the deposits in the central counties. These northern deposits have been as yet little worked, but are now being prospected vigorously by energetic men.

BUTTE COUNTY.

(From our Special Correspondent.)

GOLDEN GATE ALLUVIAL SYNDICATE, LIMITED.—Despite the fact that the thermometer has been registering 112° in the shade, a force of 400 men is being kept busy "stripping," preliminary to gravel washing on the claim of this company and also that of the Golden Feather Channel, Limited.

ELDORADO COUNTY.

AMERICAN RIVER COMPANY, LIMITED.—This company, operating the Dalmatia mine, proposes to begin work in the St. Lawrence, situated in the Kelsey Mining district, on what is known as the Georgetown Divide. Power for this mine will be furnished by the electric plant of the Dalmatia.

FRESNO COUNTY.

(From our Special Correspondent.)

An old tradition is to the effect that the bed of the San Joaquin River is exceedingly rich in gold. A survey has just been made with the view of turning the river from its channel, and mining claims have been located during the current week covering every foot of ground below Hamptonville to a point above Millerton.

NEVADA COUNTY.

IDAHO GOLD MINING COMPANIES.—Some high-grade ore has been struck in the shaft below the 2,200-ft. level.

SAN BERNADINO COUNTY.

(From our Special Correspondent.)

SAN JACINTO ESTATE, LIMITED.—Some very radical changes have been made in the conduct of affairs at the tin mines. The stockholders in London being dissatisfied with the management of Colonel Robinson, he was summoned thither to furnish a full report. He arrived in London on August 21st, and on the following Monday a telegram was received by J. Harris, telling him that Colonel Robinson had closed his connection with the company. Mr. Harris, the new superintendent, is an experienced Cornish miner, and, in accordance with instructions previously received, he proceeded to suspend all work except that of the development of the mine and reduction of the ore. Work on the expensive dam being constructed four miles from the mine, was stopped, the water necessary being obtained in abundance at all times by pumping from the shaft. All farming operations were also suspended. The present purpose of the company is to subordinate everything to the complete development of the mine. The experimental mill is kept constantly running, and it is expected that about one month hence the new mill will be in running order.

(From an Occasional Correspondent.)

The country near Danby, in this county, where some very promising mining undertakings are now in progress, is throughout a granite formation and is of very wide extent. In general contour it presents the appearance of a great barren plain out of which rise isolated points and low ranges of mountains. The strike of these ranges is generally north and south. As far as I can learn from prospectors and miners, the whole region, about 160 miles square, is marked by the same characteristics, so that what I may say of any one part is probably true of all.

At some points in the region there is a lime capping and at such places silver ores are found. On the side of the mountains, on which Danby is located, there is no lime at all. The mineral is found in true-fissure veins running northwest and southeast. In the camp near Danby there are three of these veins almost exactly parallel and at no point more than 600 ft. apart. Each of these can be distinctly traced for about two miles, and doubtless beyond, but at the two-mile point, the whole range is bisected by a mountain mass of later and different formation. This mass is said to be very rich in low-grade carbonate ores. Beyond it the before-mentioned veins appear, keeping their exact course, but changing quite completely in the character of the mineral, much silver and little gold. An 80-ft shaft and a 200-ft. tunnel in the camp near Danby give a silver-chloride ore of an average value of $250 per ton. This is the deepest working in the camp and the vein in strength and richness improves as it sinks. The Amherst group of claims is located on the upper or most westerly lead, which seems to be the largest and the strongest.

The Amherst lead is marked by huge outcrops of diorite (or what might in some camps be called porphyry) and quartz. Both quartz and diorite carry gold and silver, but interchange both along the lead, and in the depth, *i. e.*, in following the lead, the quartz disappears and the diorite comes in, and vice versa; again, in going down, the same interchange is found. But always the mineral is found. This lead can be followed throughout the entire length of Amherst No. 1 and 2 claims, and rock can everywhere be found that will bear gold. However, it has been the experience that the quartz gives best returns, so working in the Amherst was begun at the top of the mountain, where a rich quartz cropping about a foot wide was found. This might be called the pay streak of the ledge. The ore seemed very rich in places in free gold, and would doubtless assay $800 to $1,000. Openings were made at two points about 50 ft. apart, these being in each case open crosscuts, as the hill slopes sharply, about 45°. In one instance the trench got down about 12 ft.; the other about 7 ft. In the former the vein seemed to scatter, and there seemed to be no wall, or at least nothing defined. In the 7-ft. cut results were more satisfactory. The quartz body increased rapidly, and was about 2 ft. wide at the bottom. It is not, however, of uniform richness, that along the river or west side being slightly different in texture and carrying all or nearly all the mineral. This inner streak is now about 6 in. wide, and will easily run $100 per ton. This point begins to show a wall, which for distinction may be called the hanging wall, though, the vein being perpendicular, there is of course no hanging wall, strictly speaking.

The camp near Danby is entirely in an untried state. In every instance the veins become stronger and better with depth. But the great question is, how deep do they go? In the Ivanpah region adjoining this, the great Silver King mine, which has produced a large amount of money, is down 700 ft., and other mines are down from 100 ft. to 300 ft. These are all on the same belt, and not 20 miles north of the Danby district. The Calico mines, only a short distance west, large producers, are all down from 300 ft. to 800 ft.

There is an immense salt deposit near Danby which should be the foundation of an important industry in this county. The salt field is of considerable extent, covering about 160 acres, and of unknown depth (25 ft. being the lowest point yet reached). The salt is of remarkably pure quality. The deposit is about 26 miles from the line of the Atlantic & Pacific Railway, across a perfectly level plain.

SIERRA COUNTY.

(From our Special Correspondent.)

BALD MOUNTAIN EXTENSION MINING COMPANY.—The property of the company comprises an area of 800 acres, traversed by an ancient river channel, which has been worked, hitherto, to disadvantage owing to the length of the tunnel (8,000 ft.) supplemented by an incline of 30 ft., through which the work of gravel extraction had to be carried on. The output of gold for August will be nearly $10,000. With 26 drifters there was cleaned up last week 123 oz. gold. One nugget weighed 11 oz. A raise has been made from the down stream tunnel into rich gravel and breasting commenced. From February, 1884, to April, 1888, the company steadily paid dividends aggregating $70,500, and from the present outlook the prospect is good of dividends again being paid with reasonable regularity.

COLORADO.

BOULDER COUNTY.

POORMAN MINING COMPANY.—According to press dispatches the Tabor Investment Company consummated on the 5th the sale of the capital stock of this company owning the Poorman mine at Caribou to a Scotch syndicate for $650,000. The syndicate is headed by Mr. Leonard Gow, the great ship owner of Glasgow, Scotland, who is president of the company which is exploiting the MacArthur-Forest cyanide process. Neil D. McKenzie and the Tabor Investment Company will be interested in the new company which is to be organized. Mr. McKenzie will be superintendent, and Thomas W. Goad, F. R. G. S., mining engineer, of London, England, who made the examination for the purchasers, has been retained as consulting engineer. Heavy machinery will be placed on the property, and new buildings will be erected.

CONEJOS COUNTY.

(From our Special Correspondent.)

CONGRESS.—This mine in Lake Fork, just over the range to the south of Platoro, is having fair success, several pockets of excellent ore having been discovered in the 250 ft. tunnel.

EURYDICE.—In this mine, at Stunner, four miles northwest of Platoro, on the same mineral belt, two valuable strikes are reported. The first one, August 7th, consists of a pay streak of over 22 ins. solid ore of apparent value of over $600 per ton. This ore is found in the long drift, 200 ft. level, 600 ft. south of the shaft. Another strike was made in the north drift, 250-ft. level, on August 12th, a streak of silver ore, assaying well in gold, having been exposed. The streak is fully 6 ins. wide, and it is thought the ore will assay $1,800 per ton. This mine now has ore of over $250 assay value (average) showing in the shaft, from 100 ft. down to 250 ft., and at several places in the 80 ft., 125 ft., 160 ft., 200 ft., 250 ft. levels south; and now in 250 ft. level north.

GOLDEN EGG.—This mine on the Mammoth lode may be developed this year, an expert having recently examined it to advise the owners concerning the matter.

GRAY EAGLE.—This mine, 2½ miles east of Platoro, situated at the lower end of the Conejos Valley, is owned by H. S. Fisher, who has run a tunnel over 125 ft. into the mountain, on the lode. Some exceedingly fine ore is being taken out, which will assay over $200 per ton, gold and silver. This lode is one of the few carrying copper in this district. The general appearance of the ore would indicate a gradual change into "gray copper" with depth.

MAMMOTH.—This is the most important mine yet opened in this district. It has produced to date fully $80,000. The owners are at present engaged upon development work, not attempting to ship on any large scale; although five or six carloads have been sent to the Omaha & Grant smelter during the past three months, which authentic report says have averaged over $8,000 per carload. They are quietly sacking and setting aside a prize carload, of which it is known that a larger portion will assay over $10,000 per ton and a certain portion $20,000 to $25,000, gold and silver—largely gold. The Mammoth developments have recently shown the existence of two veins, in one of which silver predominates, in the other gold. Work on the surface is being pushed, to get things in shape to receive the new plant of machinery expected shortly, consisting of two 40-H. P. boilers, air compressors, drills, and the accompanying apparatus.

MERRIMAC CONSOLIDATED MINING COMPANY.—This company is expected to start work upon the Merrimac at once, electric drills, a new pump and other machinery having been installed. The Merrimac lode is one of the strongest in the district, considerable very fine ruby ore carrying much gold having already been taken from it. This shaft is down 240 ft., and 50 ft. further will bring it to or below water level.

PAROLE.—This mine is still idle, but it is thought that work will be resumed upon it as soon as Mr. A. E. Reynolds, the chief owner, gets his new properties, the Golconda, Bob Tail, Riggs, the Iowa Hill, and numerous others at Summitville, which he recently purchased of ex-Senator Thomas Bowen *et al.*, in running order.

PEORIA MINING COMPANY.—This company is working eight men driving the lower tunnel, already in over 100 ft., and the vein is increasing gradually in width and strength, excellent ore being occasionally found, but not in large quantities. If the indications continue to improve there is prospect that a large body of high-grade ore will be found when the face of heading is under the point where the ore chute was struck in the upper tunnel, some 200 ft. above. The character of the ore in this lode is similar to that of this camp generally, gold and silver, the latter being in the form of antimonial and ruby silver. The largest masses of solid antimonial ore found in this district come from the Peoria lead.

SILVER MAIDEN.—A strike is also reported in this mine, 14 ins. of ore, average value over $60, having been uncovered in the shaft, at the depth of but 30 ft.

CUSTER COUNTY.

BULL-DOMINGO MINING AND LEASING COMPANY.—Crude petroleum from Florence is now being used as fuel at the dressing works. An 80-barrel tank has been erected at the mill as a reservoir.

GARFIELD COUNTY.

GRAND RIVER COAL & COKE COMPANY.—The men at the Sunshine mine demanded an increase in wages and the discharge of a non-union workman on the 28th ult., and being refused 75 of them struck. During the evening the strikers, excited by whiskey, destroyed some of the company's property and threatened to burn the works. James Anderson, superintendent of the colliery, promptly swore out warrants for the arrest of the ringleaders, who were taken to Cardiff by the sheriff of the county. Mr. J. B. Wheeler, of New York, president of the company, who is now in Colorado, ordered the Sunshine mine to be shut down pending a settlement of the difficulties.

GILPIN COUNTY.

RIALTO MINING COMPANY.—This company has leased 25 stamps in the Gregory Bobtail mill at Black Hawk, where its mill ore will be treated hereafter. Of the 125 stamps in this mill, 50 are running on ore from the Bates-Hunter, Clay County, and Gold Rock mines, and 25 on ore from the Gregory, the remainder being hung up at present.

ST. LOUIS-GUNNELL MINING COMPANY.—This company is going to put 15 more stamps in the Golden Fleece mill, the increasing output of the mine making this necessary. The ore that is now being stoped is of unusually high grade.

LAKE COUNTY.

MAID OF ERIN SILVER MINES, LIMITED.—The statutory general meeting of this company was held in London on the 27th ult. Mr. Archibald Buchan-Hepburn, chairman of the company, made the following statement: The Maid of Erin Silver Mines, Limited, was organized in London to take over the capital stock of the Henriett & Maid Consolidated Mining Company, of Colorado. The transfers, having been completed, are now in Denver, being finally registered. During the first three months of the new company's existence (May 1—July 31), the mines have made a gross yield of 20,836 tons of ore of estimated value of $466,000 or £96,000, giving an average of $22 per ton. The net profit has been $197,000, or £40,618. A dividend of 1 shilling per share, payable Sept. 1, has been declared by the directors, which will take up £28,750 and leave a balance of £11,868 to be carried forward. The manager of the mines reports that a new body of lead ore has been struck in Adams ground, which promises very well, and that the sulphide stopes show thick bodies of high-grade ore to an extent not yet determined. The company is at present producing about 260 tons of ore per day, the contracts for sale covering about 120 tons of sulphide and 140 tons of carbonate. A renewal of the Adams lease, which expires in two years, has been promised.

OURAY COUNTY.

CALLIOPE MINING COMPANY.—At a meeting of the shareholders on the 18th ult., D. C. Hartwell, C. H. Nix, Otto Mears, E. J. Bent and Fred Walsen were elected directors. It was decided that the directors should negotiate a loan to erect a plant of machinery at the mine and resume operations on a more active scale.

NEW GUSTON COMPANY, LIMITED.—The directors have purchased for the sum of $40,000 the Elnora claim adjoining and parallel to the Guston on the west side.

POLAR STAR.—Eighteen inches of solid ore were struck last week in the fourth level south of the Polar Star mine on Engineer Mountain. The ore assays from $150 to $300 silver per ton.

PARK COUNTY.

EMMONS MINING COMPANY.—This company has closed a contract with the Pickett Tramway Company for the erection at the mines of an aerial tramway of 150 tons per 10 hours capacity. The plant which is to be completed in 60 days will cost $10,000.

The company is at present shipping 1½ carloads of ore per day. A large amount of prospecting work is in progress, four new shafts being sunk, two of which are already in ore. The Emmons property is now opened by five shafts and two tunnels. The Peerless Maud mine, which is opened to a depth of 160 ft., is looking very well, while a recent strike in the Magna Vista is of considerable promise.

PITKIN COUNTY.

BORNEO MINING COMPANY.—This company is making arrangements for the development of its property on West Mountain, near Pitkin, in a more energetic manner than heretofore. A tunnel driven 30 ft. from the surface, some time ago, cut the contact, and, in a drift run 40 ft. from the breast of the latter, ore was uncovered, which was followed about 20 ft., when it began to pitch down. Mr. W. Porter Nelson, of Aspen, is president of the company.

BUSHWHACKER MINING COMPANY.—The directors of this company held a meeting on the 24th ult. at which a resolution was passed authorizing the sale of 40,000 shares of treasury stock at 40 cents a share. The present stockholders will be given 30 days from September 10th to take their proportion of stock at that figure. The transfer books will close September 20th. After October 10th all of the 40,000 shares not taken by stockholders will be sold at the best figures obtainable, but not less than 40 cents a share. The proceeds of these sales, with the money on hand, will be used for development work. Excellent progress is being made on the raise from the Cowenhoven tunnel in the Bushwhacker mine, and it is thought that 60 days will be sufficient for its completion.

EXPRESS SILVER AND GOLD MINING COMPANY.—This company, operating at Ashcroft, which recently increased its capital stock to $3,000,000, purchasing the Atlanta, Magnolia, Silver King, St. Louis, Silver Bell, Little Gertrude and Washington claims, now owns 17 patented claims in all. The breast of the tunnel which the company is driving into Silver Mountain is in 1,700 ft. and indications are said to be quite promising.

MOLLIE GIBSON CONSOLIDATED MINING AND MILLING COMPANY.—Since January 1st, this company has paid off, says a local paper, an indebtedness of $106,000, and has purchased additional mining property to the amount of $165,000. Operating expenses have been $85,000, while $500,000 has been paid in dividends, and $500,000 placed in the treasury.

SMUGGLER MINING COMPANY.—The men of the Standard Mining Company working in the J. C. Johnson mine broke into the disputed workings now held by the Smuggler company on the 23d ult. and attempted to take possession. The Smuggler company promptly armed a force of men and sent them underground to maintain its position. A fight was fortunately avoided. Judge Hallett on July 28th gave the Smuggler company an injunction restraining the Standard company from trespassing on the disputed ground, and appointed September 17th as the date of the final hearing. It is not expected that there will be any more violence between the two contestants before that date. The possession of this ground is of great importance to the Standard company, not only on account of the ore bodies known to exist in it, but on account of the bearing it has in the suit of the company vs. the Della S. Mining Company.

TAM O'SHANTER.—Work has been commenced in this and the Montezuma mines, which have been idle for some time, by Jacob Sands & Co., who have leased the property. A force of 22 men is already at work, chiefly engaged at present in retimbering old workings, which were in very bad condition. Some prospecting work has been done along the surface of the vein, and several streaks of ore from 6 in. to 3 ft. wide have been uncovered. Ore is shipped from the mine to Ashcroft by jack train, and thence to Aspen by wagon. An output of about 5 tons per day is being made at present, and it is expected that this will soon be increased to 20 tons.

PUEBLO COUNTY.

According to local papers, W. B. Jackson, of Pueblo, has succeeded in organizing a smelting company, in England, with a capital of $2,000,000, ($500,000 paid in) to erect lead smelting and refining works at Pueblo.

SAN JUAN COUNTY.

J. J. Donnelly has succeeded in selling, in London, a group of claims including the Tin Cup, Little Prince, Mountain Quail and Summit, located in Dry Gulch, says the Silverton *Miner*. The price is said to be $100,000, and final payment is to be made by November 1st.

LACKAWANNA.—This group of mines, which has been idle since the death of William F. Graf, its former owner, has been leased to W. C. Watson, who has already commenced exploration work in the vein. Four years ago the property produced a considerable quantity of ore.

LEAD KING MINING COMPANY.—The new dressing works, which have 40 tons per day capacity, have been put in operation, and work has been resumed in the mine.

SAN MIGUEL COUNTY.

SMUGGLER-UNION MINING COMPANY.—The cross-cut tunnel, which is to be 2,400 ft. in length, has been started, and a shaft is now being sunk to the level at which it will cut the vein. The new plant of machinery recently purchased by the company is nearly completed.

SUMMIT COUNTY.

ROSE OF BRECKENRIDGE MINING COMPANY.—A rich strike is reported in the Rose of Breckenridge mine, Mineral Hill, Breckenridge, a small streak of extremely rich ore having been cut by the shaft 700 ft. from the surface.

FLORIDA.

GULF STREAM PHOSPHATE COMPANY.—This company has been incorporated with a capital of $1,000,000 to mine phosphate in Alachua and Marion Counties. The principal office will be at Tallahassee.

IDAHO.

According to the Wallace *Miner*, the present daily shipment of concentrates from the Cœur d'Alene mines is as follows: *Canyon Creek:* Poorman, 40 tons; Tiger, 25; Helena & San Francisco, 30; Milwaukee (Gem), 20; Black Bear, 10; Granite, 20. *Nine Mile:* Custer, 20. *Mullan:* Hunter, 20; Morning, 20. *Wardner:* Bunker Hill & Sullivan, 75; Stem Winder, 20; Emma & Last Chance, 30. Total, 330. The average lead contents of these concentrates is said to be 60%, and the silver 35 oz. per ton. No shipping ore is included in these figures.

The discovery of large copper veins on Middle Salmon will result in great benefit to the State, says the Boise *Statesman*, as they will bring central Idaho into notice and cause that extensive and rich section to be opened up and wagonroad communication established. They are not far from Sheep Mountain and Seafoam districts, which have attracted some attention during the past few years. In the latter districts the ores are principally argentiferous quartz and galena, while at Deadwood, only a few miles south, there are a great many ledges rich in both gold and silver. On the South Salmon there are mines of considerable promise in the Alton and Johnson districts, with hundreds of miles of unprospected country adjacent.

CUSTER COUNTY.

VIENNA MINING COMPANY.—It is reported that the old Vienna mines, which have for years laid idle, owing to litigation and other complications, are about to be worked again. The company built a mill that cost over $200,000 and took out $750,000 from one of its mines, according to report.

ELMORE COUNTY.

OPHIR.—The shaft is down 310 ft., at which point a drift has been started for the ledge, which will be cut, it is expected, within 100 ft. of the shaft.

WASHINGTON.—The bottom of the shaft on this property, which is located on the southwest extension of the Queen of the West ledges is said to be showing 20 in. of $60 quartz. A lot of 50 tons taken from this strike is now being run in Resser's mill. A tunnel is being driven to cut the ledge at greater depth.

KOOTENAI COUNTY.

JEANNETTE MINING COMPANY.—This company has been organized to operate at Bonner's Ferry. The capital stock is $500,000, in shares of $1 each; the maximum of indebtedness the company can incur is $25,000. The officers are: John Armstrong, president; George B. Eberhard, secretary; H. H. Markley, Treasurer. These, and Thomas J. Jones, Benjamin Morrow, Peter Armstrong and Ernest J. Merrin, constitute the Board of Directors.

LOGAN COUNTY.

MONDAY.—This mine is reported to be looking very well again. It is now being worked under lease by J. B. McCoy and P. J. Clark.

OWYHEE COUNTY.

POORMAN MINES, LIMITED.—The ore from the Poorman mine is being milled by the Silver City Reduction Company at the rate of from 10 to 12 tons per day. At the mine quite a large force is employed, mostly on development work. The im-

provement reported in the Illinois Central recently still continues, the vein having widened out and the ore steadily increasing in value. The crosscut to the Glenbrook has not cut the vein, but will probably do so shortly. The ore in the tunnel continues good. This tunnel is being extended south on the Poorman vein at the rate of 2 ft. per day.

TRADE DOLLAR MINING COMPANY.—Reports of rich strikes come from the Trade Dollar mine. A rich chute of ore was uncovered in the No. 2 tunnel recently. The main tunnel of the Jim Blaine is also in shipping ore. The vein, which is about 2½ ft. in width, has an 8-in. streak of $300 ore on the hanging wall.

SHOSHONE COUNTY.

IDAHO.—This mine at Murray has been leased to Clarence Cunningham, and work in it will probably be commenced soon. It is said that the 20-stamp mill, most of the machinery of which is on the ground, will be completed.

LAST CHANCE MINING COMPANY.—This company is now unwatering the lower levels of the Last Chance mine, which have been flooded since the workings of the Tyler mine were broken into about a month ago. Good progress is being made with the Sweeny tunnel, which is to open the vein 600 ft. below the present workings.

MOTHER LODE.—The result of the last run of ore from this mine at Murray, from June 23d to July 20th, yielded gold bullion valued at $12,776.84. The expenses for the month were about $5,000.

STANDARD.—This claim, together with the Banner and two-thirds of the Sullivan fraction, have been purchased by John A. Finch and A. B. Campbell for $25,000.

WASHINGTON COUNTY.

Parties who have recently come in from the Seven Devils mines, says the Weiser *Leader*, report a very unsatisfactory condition of affairs. In fact nothing to speak of is being done in the mines. The only work now going on is on the Bodie, the owners of which are putting down a shaft. No mineral is being produced from the district, and so far as any profitable or practical results the immense deposit is as useless as it was the day nature heaved the mass of silver and copper ore to the surface. The owners of the Standard have done considerable work this season and the present indications are the mine will rank among the best. In fact everything looks well enough for the future, but is at present discouraging. Something may be done in the way of buying and selling properties this year, but no active mining work will be commenced. The owners of the South Peacock will soon sink their shaft 100 ft. The failure of the contractors to build the Snake River wagon road has had a demoralizing effect on every one, and has caused financial loss in many instances. In fact the whole scheme of steamboat, road and everything connected with it has had an uncanny look from the first. Experts who have been looking over the Seven Devils country feel confident and even certain that immense bodies of ore in fissures exist, and wonder that no attempt has been made to get at them. The deepest shaft in the whole country is only 65 ft., on the South Peacock.

ILLINOIS.

COAL.

Between 700 and 800 miners went out on strike at Briceville on the 4th inst., owing to the failure of their attempts to secure the benefits of the weekly pay law recently enacted by the State Legislature.

MICHIGAN.

COPPER.

The mineral output of the different mines for August so far reported is as follows:

	Tons.		Tons.
Allouez	57	Kearsarge	90¼
Atlantic	211	National	21
Calumet & Hecla	3,926	Osceola	30½
Central	58	Peninsula	9⅞
Centennial	75	Quincy	570
Copper Falls	80	Tamarack	930
Franklin	201	Total	6,521

ADVENTURE.—Eight men are employed in sinking the new shaft on the Knowlton vein, which is now 75 feet deep. Work will be continued through the coming winter.

ALLOUEZ MINING COMPANY.—As predicted in our issue of the 29th ult., this company has called an assessment of 50c. per share. It is in the form of an installment to be paid on the company's capital stock, and is payable October 10th, 1891, with interest at the rate of 6% after that date. No stock will be transferred on the books of the company unless this installment is paid. The reason assigned for the call is to be found in the statement of the company showing its financial standing July 31st, 1891. It is as follows: Assets—Cash in bank, $10,233.10; copper sold and on hand, $16,169.43; cash at mine, $867.46; fuel, $27,194; supplies, $14,640.76; total available assets, $69,104.75. Liabilities—Agents' drafts, $13,839.58; indebtedness at mine, $11,116.66; smelting, freight and other bills, $3,662.76; loans, $30,000; total, $58,619; balance of available assets, $10,485.75.

CENTRAL MINING COMPANY.—This company has reduced wages 10%. The copper-mining region is overrun with men who are seeking work. Most of these have been deprived of employment in the iron-mining regions which lie 100 miles to the south, owing to curtailed operations in those districts.

COULTER COPPER COMPANY.—This company's property was recently sold by order of the court, its charter having expired by reason of the statute limiting corporate existence to 30 years. Mr. Samuel A. Hinszey, of Philadelphia, Pa., acting in the interest of the majority of the stockholders, was the purchaser. It is said that a new company will be organized.

FRANKLIN MINING COMPANY.—This company's No. 3 shafthouse was destroyed by fire on the night of the 9th inst. The building is reported to have been well insured.

QUINCY MINING COMPANY.—J. O. Shaw, of Boston, a stockholder in trust of the Quincy Mining Company, filed a bill in the United States Circuit Court for the district of New York on the 3d inst., against the Quincy Mining Company, T. F. Mason, T. H. Mason, and Hart Smith, reciting that at certain times in the past votes were passed by the Quincy Mining Company to issue 10,000 shares of new treasury stock with which to purchase the property of the Pewabic Mining Company. It alleges that T. F. Mason, president and director of the Quincy Mining Company, holds entire control of the board of directors. That T. F. Mason caused his son, T. H. Mason, and W. H. Smith to purchase the Pewabic property on June 24th, 1891, paying therefor the sum of $710,000, and that in making that purchase W. H. Smith and T. H. Mason acted as agents for T. F. Mason and paid for it with his money, whereas, it alleges, the sale was really made for the Quincy Mining Company; that as soon as they received the deed, they treated the sale as a sale to themselves personally; and that on February 4th, 1891, T. F. Mason caused a majority of the board of directors of the Quincy Mining Company to vote the 10,000 shares of the Quincy Mining Company's stock to T. H. Mason and W. H. Smith in payment for the Pewabic property. The bill further alleges that they also caused the Quincy Mining Company to pay $90,000 more in cash to T. H. Mason and W. H. Smith for their counsel fees. The bill shows the value of the Quincy mining stock to have been at that time $110 per share, which price it also commands to-day. The bill alleges that the transaction was a rank injustice committed against the stockholders of the Quincy Mining Company, and the plaintiff prays: First, that the issue of 10,000 shares of Quincy mining stock be declared fraudulent and illegal. Second, that all the 10,000 shares be delivered up and be cancelled. Third, that the Quincy Mining Company be ordered to pay T. H. Mason and W. H. Smith $710,000 in money, the sum which they received for the Pewabic property. Fourth, that T. F. Mason, T. H. Mason and W. H. Smith be made to account to the Quincy Mining Company for all of the 10,000 shares of stock obtained. Fifth, that T. F. Mason, T. H. Mason and W. H. Smith be made to account for all profits made on the 10,000 shares deal. Sixth, that they account for the $90,000 received for alleged counsel fees. Seventh, that T. F. Mason, T. H. Mason and W. H. Smith be held liable to the Quincy Mining Company for all the loss the Quincy Mining Company has suffered by reason of the issue of the 10,000 shares of stock. Eighth, that in case the sale be held to be valid and binding, T. F. Mason, T. H. Mason and W. H. Smith account to the Quincy Mining Company for the value of the 10,000 shares, at the actual value less the $710,000 paid.

Last week Mr. N. H. Daniell, transfer agent of the Quincy Mining Company, refused to transfer 300 shares of stock, the property of his father-in-law, ex-director John N. Brown, on the ground that a petition had been filed some time previous for the appointment of a guardian for Mr. Brown, and that any transfer of stock pending proceedings would make the Quincy Mining Company liable. The Governing Committee of the Stock Exchange evidently thought differently, and being unable to see how an officer of a stock company could, according to its rules, use his official position to further what seemed to be his personal ends, ordered the stock struck from the list. Inquiry at the office of the company, 52 Broadway, this city, elicited the fact that official notice of such action had been received. Owing to the absence of the principal officers of the company from the city no immediate action will be taken.

WOLVERINE MINING COMPANY.—This company started up its one-head stamp mill last week. Secretary John Stanton informs us that the management expects to keep the mill in permanent operation. This adds another to the list of producers of Lake copper. The monthly output of mineral will probably be about 60 tons.

(From our Staff Correspondent.)

HURON MINING COMPANY.—On June 27th (as published in the ENGINEERING AND MINING JOURNAL of July 4th) attachments to the amount of $38,720.50 were filed on this company's mine by local creditors. Up to the last of August, additional claims emanating from drafts refused by D. L. Demmon, treasurer of the company, swelled the amount to $69,912.80. Since the attachment of the mine by the sheriff, it has been under the management of Johnson Vivian, its superintendent. T. L. Chadbourn, attorney for the creditors, in an interview with the writer, stated that the company was operating the mines, that the creditors were paying the labor bills, and that the product of copper was going to the creditors to satisfy their claims. In sifting the matter rather a peculiar condition of affairs is found to exist. The mine is just one month behind in the payment of its labor bills, i. e., the June bills were paid by the creditors on the 25th of July and the July bills were to be paid on the 29th of August. At the time of the attachments there was $10,000 worth of copper on hand at the Detroit & Lake Superior smelting works, which was turned over to the creditors by the sheriff upon the issuance by said creditors to the sheriff of a $50,000 bond, and $15,000 worth of supplies. The mine, working under the new arrangement, produced during the last twenty days in July and the first ten days in August, 45 tons of ingots. During this specified time, the cost sheet is said to show an expenditure of $18,000. At this rate the cost of copper per pound produced, is 20c. With copper selling at 12½c., it is somewhat difficult to determine just why the company which owns the mine, or the creditors who pay the bills, continue the operation of the property. The only explainable reason for this action on the part of the creditors, is that many of them, who are said to hold large provision accounts against the laborers, are seeking to square the same by this method. The $15,000 in supplies, mostly fuel, will soon be exhausted. Surely the stockholders of the company are not profiting by the arrangement. The writs of attachment have been returned, and it is understood that the matter will be heard at the term of the circuit court now in session in Houghton County.

IRON—MARQUETTE RANGE.

Mr. W. B. Lindsley, superintendent of the Peninsula division, Chicago & Northwestern Railway, according to the *Iron Ore*, reports ore shipments to be lively. His company has added 100 new cars to its equipment and has leased as many more from the Wisconsin Central Railroad. The supply even with these additions is not sufficient to meet the demand. The Northwestern is taking care of 80 different kinds of ore at its docks, a task that few can realize the magnitude of. The new ore carriers of the larger companies are of much advantage to the shipping. They make trips regularly, running on schedule time.

EDISON IRON CONCENTRATION COMPANY.—This company has secured a lease of the old Spurr mine, near Michigamme, and is examining it with a view of erecting a plant for the concentration of its ore. Mr. Theodore Lehman, of Orange, N. Y., is in charge of the experimental work.

LAKE ANGELINE MINING COMPANY.—This company will carry over to next season about 50,000 tons of ore.

IRON—MENOMINEE RANGE.

A shaft is being sunk at Quinnesec to reach the ore body recently struck by a diamond drill. It is 5 × 8 ft. in size, divided into two compartments.

DUNN MINING COMPANY.—This company has so far this season made an output of about 105,000 tons. The present daily shipment averages 1,000 tons from mine and stockpile and could be held at 1,600 if cars were supplied. The present hoisting average is 800 tons daily; this will soon be increased to 1,000 tons by reason of new ground, which is being opened at the north end of the property. From No. 3 shaft, at a depth of 390 ft., a drift has been run north and at a distance of 130 ft. has just cut the ore, the extent of which is unknown. This will be opened at once. The open pit at the south end is being cleaned out to a depth of 200 ft. A drift is to be driven through on the 300 foot level, and the ground under the south pit will also be cleaned out. The same line of work will be followed in the fourth level at a depth of 380 ft.

LUMBERMAN'S MINING COMPANY.—The Ludington mine had, up to September 1st, shipped 100,000 tons of ore this season. The total output, it is estimated, will be 150,000 tons. Shaft "A" is now about 80 ft. below the 14th level, or 1,380 ft. deep. Shaft "C" is 1,320 ft. deep or 20 ft. below the 14th level, and shaft "B" is down to the 12th level, a depth of 1,100 ft. Shafts "A" and "C" will be connected by drift and crosscut at the 14th level. The drift west from "A" is now in about 100 ft. The crosscut from "C" to the north has also been commenced, and will be gradually turned to the east to meet the drift from "A." Shaft "C" is giving some trouble from heavy ground, and part of it will have to be retimbered; shaft "B," which is an inclined one in the footwall, is gradually taking its place as an outlet for ore. The new cage in the latter shaft, which was designed for a timber cage and for the lowering and hoisting of men, has been tried, but found too heavy (it weighs about 5,500 lbs.) for the new machinery, and a temporary one has been put in, which will be used until the cylinders of the engines are changed from 22 × 60 in. to 30 × 60 in. The trouble comes principally from the fact, says the Norway *Current*, that the engines were designed to work by steam at a higher pressure than is obtainable from the air compressors, and the steam boilers are not yet ready for duty. The change contemplated will insure sufficient power and avoid any future trouble. The twin drums with 30 × 72 in. cylinders put in to work the skips in the other compartments in this shaft are working very smoothly. The tubing which is to be put down for the purpose of sending down filling for the rooms has begun to arrive. The working force of the mine at present is about 600 men.

MANSFIELD MINING COMPANY.—This company has shipped this season 25,000 tons of ore and is

hoisting an average of 250 tons per day. A drift now being run south along the foot-wall at the second level is 210 ft. beyond the timbers, being in ore the entire distance. At this point the vein has widened out to 28 ft., a gain of from 5 to 8 ft. An additional or fourth level will soon be opened.

PEWABIC MINING COMPANY.—This company has shipped 45,000 tons of ore so far this season, and an average of 275 tons per day is now being hoisted. The drifting east at the bottom of the shaft is showing, it is said, some better ground. A new rope haulage plant for underground tramming has been put in.

MISSOURI.

Mr. Arthur Winslow, state geologist, reports under date Sept. 3, that during August examinations of the zinc and lead deposits have been extended into Greene, Stone, Webster, Howell, Oregon, Carter, Texas, Wright and Shannon Counties. Inspections of iron ores have been made in Cape Girardeau, Bollinger, Wayne, Stoddard, Reynolds, Carter, Ripley, Shannon and Howell Counties. Detailed mapping has been prosecuted in Macon, Chariton and Henry Counties, and about 70 square miles have been covered. The study of the quaternary deposits has been continued over the central portion of the state adjacent to the Missouri River. The mapping of the crystalline rocks has been continued in Madison, St. Francois, Washington, Iron and Reynolds Counties, as has also the geological mapping in Greene County. For the purpose of constructing models illustrating the conditions of occurrence of Missouri ore bodies, detailed surveys have been completed of two important iron deposits. With reference to future work, steps have been taken toward securing for the state the determination of the latitude and longitude of a series of points, which determinations are necessary for the further prosecution of the detailed mapping now in progress. Sickness of several members of the survey during the past month has materially retarded the work.

OZARK ONYX COMPANY.—This company has been organized with a capital stock of $300,000, to develop and work onyx quarries in the Ozark Mountains, Pulaski and Crawford Counties. The company has already established a plant in St. Louis, costing $75,000, for polishing the stone.

JASPER COUNTY.

(From Our Special Correspondent.)

JOPLIN, Sept. 7.

The lead and zinc mines were actively worked during the past week notwithstanding the fact that there was a decline in the ore market. The average price paid for zinc ore was $22.50 per ton. Lead declined $1 per thousand and closed at $24.25. Following are the sales from the different camps as far as reported:

Joplin mines, 1,404.860 lbs. zinc ore and 172,305 lbs. lead; value, $20,183.

Webb City mines, 764 410 lbs. zinc ore and 38,310 lbs. lead; value, $9,528.50.

Carterville mines, 1,920,100 lbs. zinc ore and 82,200 lbs. lead; value, $24,073.

Zincite mines, 273,100 lbs. zinc ore and 610 lbs. lead; value, $3,210.75.

Oronogo mines, 74,050 zinc ore and 55,300 lbs. lead; value, $2,075.

Galena, Kas., mines, 808,270 lbs. zinc ore and 132.410 lbs. lead; value, $11,248.

District, total value, $70,318.25.

Prof. Jenney is again in Joplin pushing the Government geological work as rapidly as possible, and is taking a number of photographic views of the underground workings of the mines to show the different formations in which the ore occurs.

The Gordon Hollow mines, located three miles southwest of Joplin, are rapidly coming into prominence as large producers of lead and zinc ores. Some new strike is reported at this camp almost every week. Last week a prospector went into some undeveloped land and started a shaft, which at 4 ft. struck float lead, and at 12 ft. had produced 1,500 lbs. of lead, the bottom being still in ore. Prospectors and miners are coming in from all directions and taking up mining lots in the camp, which is located in a strong depression or draw putting out to the north from Shoal Creek, and has always been looked upon as a favorable locality for surface deposits of lead and zinc ore.

EMPIRE ZINC COMPANY.—Mr. J. P. Wetherell, general manager of this company, arrived in Joplin last week and will spend some time in looking after the company's large mining and smelting interests. The principal mines of the company are located in the southwest part of the city on a 200-acre tract of land, which is now well developed and is operated under the supervision of Mr. W. C. Wetherll and Superintendent Dwyer. The company has a large central power plant, from which the power is transmitted by cable to the different shafts for hoisting, etc.; the ore is conveyed from the shafts to the dressing works by tramways. The tram cars are hauled up an incline, dumping the ore on the crushing floor of the mill, whence it passes through the crushers, rolls, sizing screens, and then to the different cleaning jigs and tables. The concentrating plant is very complete in all its details, and is turning out some of the finest ore in the district. The company's zinc smelter is located in the west part of the city, and has a capacity of producing 15,000 lbs. of spelter per 24 hours. It is run at full capacity all the time. The company owns several large tracts of undeveloped mineral land in Newton County, which it purchased two years ago.

SOUTH JOPLIN MINING COMPANY.—Cooley & Elmore last week completed the new concentrating plant for this company, and made a test run of the machinery, which worked to perfection. This is the twenty-third mill erected by this firm, using the Cooley patent self contained jig.

MONTANA.

It is reported that there is a movement on foot to consolidate a group of mines in the Park cañon district, form a new company and undertake the development of that section on an extensive scale. The Major Budd people are said to be at the head of the enterprise, and their group of claims will be taken in by the new company. The Major Budd property has long been idle on account of litigation and lack of funds.

The annual election of the Butte Miners' Union for 1891 was held on the 2d inst., and resulted in the election of the following officers: President, Joseph Thomas; vice-president, William Robinson; recording secretary, G. M. Dallas; financial secretary, James McCann; treasurer, John J. Barry; conductor, John Shovel; warden, Henry Ray. Finance Committee: J. C. Bowden John A. Smith and John Nance. Delegates to Trade and Labor Assembly: Joseph Thomas, John Fogarty, Peter Breen, G. M. Dallas, Daniel Drew, Anthony Shovelin, J. M. Steinburn, James McLaughlin, W. H. Eddy, James McCann, Iver Siverson, J. J. Barry, E. J. Chappell, Michael McKevitt, Patrick Boland, William Hogan, Thomas Furlong and Frank Betts.

WORLD'S FAIR MINING AND DEVELOPMENT COMPANY.—This company has been organized in Helena for the purpose of acquiring and developing promising prospects in Montana. The capital stock of the company consists of 200,000 shares of $10 each, 100,000 being preferred, and the remainder common stock, all of which is held in the hands of a trustee under a binding contract that none of it shall be sold or disposed of in any manner until the year 1894, rendering it impossible for the incorporators to realize any profit save through the profits earned by the company. The 100,000 shares of preferred stock are owned by the company, 15,000 shares of which are now offered for sale at $1 per share. A guarantee also accompanies the sale of this stock binding the company to pay dividends thereon to the amount of 75% of the purchase price before dividends are paid upon any other stock. Two mining properties, the Eva May and Minerva, have already been acquired by the company, the same having been fully paid for by the incorporators and conveyed to the company. These properties are located in the Cataract district, being less than one-half mile from the Copper Bell group of mines. The Black Bear vein, a strong fissure which has been traced for five miles, is supposed to extend through them. On the Eva May a tunnel has been run on the footwall some 70 ft., ore of shipping grade being encountered. The vein extends into the mountain, and great depth will be obtained as the tunnel is extended on the vein. The company has already let a contract to extend this tunnel 100 ft., when a crosscut will be made to the hanging wall, the surface indications showing the vein to be upward of 100 ft. in width. The company cannot contract indebtedness in excess of $500 without the consent of the entire board of directors, and no indebtedness can be created to exceed $3,000 without the consent of three-fourths of the stockholders. The officers of the company are Charles D. Curtis, president; A. H. Nelson, secretary; Wm. M. G. Settles, treasurer, and Daniel P. Simpson, vice-president and general manager.

DEER LODGE COUNTY.

BI-METALLIC MINING COMPANY.—It is reported that this company has struck ore in the Parnell shaft, which is now at a depth of 400 ft. It is said that the ore came in the shaft from the north, and that at present the entire bottom of the shaft is in vein matter carrying considerable rich ore.

ELIZABETH MINING COMPANY.—A substantial body of high grade ore has been encountered in the Elizabeth mine, says the St. Louis *Republic*. A number of telegrams have been received at the St. Louis office confirming the news sent last week. The first message said: "Assays just out give 300 oz. silver per ton on first-class ore and 4● oz. on second. About two-thirds of the streak is first-class ore." A later dispatch said: "Average assay high-grade ore 275 oz., low-grade 70 oz."

ONTARIO.—From all reports this mine, in the Elliston district, is going to be a good property, says the Helena *Independent*. It is estimated that over $150,000 worth of ore is now b ocked out and ready for stoping. During the past 35 days 15 men have taken out 300 tons of high-grade ore. The ore is hauled to Rimini, 8 miles, and then shipped to the East Helena smelter. The lower level, 170 ft. from the surface, shows a continuous body of ore 250 ft. long, with a 2-ft. pay streak in the west face. The ore nets about $1,200 a car.

JEFFERSON COUNTY.

Some years ago the Lowland district in this county attracted much attention, says the Helena *Journal*, owing to discoveries of strong veins of quartz running well in gold and silver, and some shipments of high-grade ore were made. In the Kittie Carson, ore was found which ran as high as $8 a pound, and quite a quantity was shipped which ran over $1,000 per ton. For some reason very little has been done in the district for several years past. During the present season, however, there has been a revival of former interest in the camp and the results are said to be very promising.

CATARACT MINING COMPANY.—Preparations are being made for the erection of dressing works at the Boulder Chief mine. The latter is said to be looking very well. Two car loads of ore shipped recently gave excellent returns.

MONTANA CENTRAL.—A test lot of 100 tons of iron ore sent from this mine to the East Helena smelter has proved very satisfactory as a flux and regular shipments from the mine will now be commenced. A vein of iron ore 25 ft. wide has been exposed in this property, which is owned by George Benjamin and A. H. Foster, of Boulder, and some Butte men.

MEAGHER COUNTY.

GALT.—A body of black ore 2 ft. wide, a sample assay of which gives $240 in silver per ton, has been exposed in this mine.

QUEEN OF THE HILLS MINING COMPANY.—Work has been begun in the upper tunnel of the Queen of the Hills mine, where nothing has been done for three years past. At the time work was suspended there, the vein was very lean. Recent work has shown great improvement, however, and already there is a streak of pay ore 2 ft. in width showing. The breast of the tunnel is now in 160 ft. Connection is being made between the upper and lower tunnels for better ventilation.

NEVADA.

The Carson *Tribune* says all the mills on the Carson River are closed down on account of a scarcity of water and that there is more ore on hand than for many months. Steam power will have to be generally used.

DOUGLASS COUNTY.

(From our Special Correspondent.)

The news being received from Pine Nut is less sensational than heretofore, but is of such an encouraging nature as to cause the deepest interest. Fifteen sacks of gold-bearing ore were brought into Carson recently from the mine belonging to W. Zirn, and which is the most important claim so far opened up. Each sack will average $1,000. It is reported that a gentleman from San Francisco, representing an Italian mining syndicate, offered $200,000, to be deposited within 60 days, for the mine, and was refused. The mine was opened for inspection a fortnight ago. On the strength of what was then seen one offer of $1,000 was made to work the claim for twenty-four hours. In four hours Zirn took out $1,500. The country is showing many new ledges, some of low-grade ore, but all well defined. Representatives of capitalists from San Francisco and other mining centers are on the ground in great numbers.

ELKO COUNTY.

(From our Special Correspondent.)

BELLE ISLE MINING COMPANY.—The line crosscut, 350 level, has been driven 18 ft.; the small drift from this crosscut has been extended 11 ft., disclosing some rich ore.

NORTH BELLE ISLE MINING COMPANY.—The east crosscut from the south gangway, 400 level, has been extended 15 ft.; the north drift from the south line crosscut, same level, has been carried 10 ft. A raise has been started on the ore near this crosscut.

LANDER COUNTY.

MANHATTAN MINING AND REDUCTION COMPANY.—The concentrator was started in motion on the 24th ult. A steam pump was placed in the Bobtail incline to supply the necessary quantity of water.

LINCOLN COUNTY.

PIOCHE CONSOLIDATED MINING AND REDUCTION COMPANY.—The Pioche railway between the new furnaces at Claflin and the Raymond & Ely shaft has been completed, and the first train ran over it on the 15th ult. It is expected that the remainder of the road will be finished by Oct. 1.

STOREY COUNTY—COMSTOCK LODE.

Following is an official statement of sums disbursed to employés of Comstock mining companies for labor during the month of August: Ophir, $2,071; Mexican, $2,231; Union Consolidated, $2,207; Consolidated California & Virginia $36,311; California Mill, $304; Belcher, $5,291; Seg. Belcher, $797; Justice, $2,518; Kentuck, $1,018; Crown Point, $5,182; Yellow Jacket, $12,942; Confidence, $1,033; Challenge, $1,127; Consolidated Imperial, $2,152; Savage, $9,101; Hale & Norcross, $8,834; Scorpion, $540; Gould & Curry, $3,948; Best & Belcher, $3,810; G. & C. and B. & B. Shaft, $248; Utah Con., $2,974; Alta, 3,500; Chollar, $11,660; Potosi, $5,936; Silver Hill, $2,252; Con. New York, $1,658; Alpha, $1,136; Exchequer, $1,136; Ward Combination Shaft, $2,470; Bullion, $1,300; Sierra Nevada, $4,215; Union Shaft, $2,751; Andes, $2,000; Occidental, $6,598; Quartz Mills, $24,000; Pumping Association, $4,000; Water Company, $15,000; Electric Light Company, $2,500. Total, $196,781. For the month of July $200,650 was disbursed; hence the above list shows a falling off of $3,869.

The contraction is due to the drafting of men in the mines, owing to the decrease of water for ore crushing facilities.

OVERMAN MINING COMPANY.—The bullion product of this company in August amounted to $22,341.64. The product was comparatively small owing to the lack of water in the Carson River, which made it necessary to close down the Brunswick mill.

WEST CONSOLIDATED VIRGINIA MINING COMPANY.—Mr. Baggett, attorney for this company, has filed in the District Court at Virginia City, an application for a survey of the underground workings of the Consolidated California & Virginia Company to ascertain if the latter company is extracting or has extracted ore from the West Consolidated Virginia ground. Both locations are included in the same patent, the West Consolidated Virginia Company deriving title by a deed from the Consolidated California & Virginia company. *

(From our Special Correspondent.)

SAN FRANCISCO, Sept. 3.

The following is the weekly statement of ore extracted and milled last week with the average assay values :

Mine.	Tons extracted.	Tons milled.	Assay Value. Aug. 9.	Aug. 22.
Con. Cal. & Va....	935	965	$21.25	$21.67
Chollar.....	495	495	17.40	19.91
Occidental..	305	305	19.20	18.10
Ophir	*33	..	18 50	....
Overman.....	136	115	†13.79	13.56
Savage.....	Not rep.	‡40	21.00	....
Yellow Jacket.....	{ §700 ‖175	....	.....	....

* Prospect ore; † car sample $19.91; ‡ residue of ore at Mexican mill; § gold bearing ore; ‖ silver bearing ore.

ALTA SILVER MINING COMPANY.—The news which is reaching San Francisco just now regarding the mine is very meagre, and for some unexplainable reason the intereston the Street is more than usually keen. The mill which the company erected a comparatively short time ago has proven a white elephant to the stockholders. After the mill was completed—it being, of course, built with funds raised by assessment—a proposition was submitted to the Board of Directors by certain parties that the mill be leased to them for a monthly rental of $200, they in return stipulating to reduce all Alta ore at the usual rate. For reasons at that time unexplainable Messrs. Derby & Co. thought it consistent with their duty to the stockholders to accept the terms offered, and the mill was leased for $200 a month. Since then the monthly account of the Alta mine with the mill has averaged $350, and the question is being pertinently asked, "Where is the catch for the Alta stockholders?" That there is profit in the arrangement is apparent at a glance,and those who are benefited by it are just the ones who should not. The lessees of the mill, hidden under the name of a company, have proven to be Mr. Derby, president of the Alta Mining Company, and certain of his associates in the directory, and so in their official capacity they leased the mill to themselves. As they charge full rates for milling Alta ore, and adopt the custom in vogue at the other mills on the lode of appropriating all tailings, residues, etc., it is not unjust to suppose that the Alta ore is also manipulated to suit the pockets of the mill owners.

CONSOLIDATED CALIFORNIA AND VIRGINIA MINING COMPANY.—The south drift, 1,100 level, has be n extended 525 ft. from the shaft station, and has connected with the Best & Belcher drift. There was shipped to the Carson mint $15,700.45 in bullion, leaving bullion on hand at the assay office valued at $12,000. In the District Court at Virginia City to-day the attorney for the company filed notice of a motion to dismiss the application of the West Consolidated Virginia Mining Company for a survey of the underground workings of the former's mine, on the plea that the Nevada statute is unconstitutional, it being in conflict with the state constitution. The report is current that the stand taken will be upheld by the court in order to defeat the survey. The application for the survey was made by the West Consolidaton Virginia Company, on the supposition that the Consolidated California & Virginia Company is extracting ore from the West Ledge in the ground of the first named corporation. Superintendent Lyman reassumed direction of the mine a week ago, but J. W. Mackay appears to be so interested in the operations now being carried on that after a brief visit to San Francisco he has returned to the Comstock.

OCCIDENTAL CONSOLIDATED MINING COMPANY.—During August there was shipped from the mine bullion valued at $5,051.63, and concentrates that sold for $7,105, a total yield of $12,156.63. There has been shipped so far on September account bullion valued at $10,412.07. The winze started on the 650 level is down 5 ft. in fair-grade ore. The raise on the same level, near No. 2 cross-cut, is up 15 ft., the top showing $15 ore. The south drift, 750 level, is in a distance of 181 ft., the face in low-grade quartz.

SAVAGE MINING COMPANY.—Ore is being shipped to the Nevada mill preparatory to crushing, which will be commenced to-day. There is on hand bullion valued at $26,000. On the 500 level a north prospective drift has been started from the 15th floor of the ore stopes and advanced 32 ft., the face in quartz. On the 1,100 level the north drift from the Hall & Norcross side has been connected with the east drift from the new station of the Savage shaft. This connection will afford facilities for working the ore found near the south boundary through the Savage shaft.

YELLOW JACKET MINING COMPANY.—This being a Nevada corporation, as far as possible all information pertaining to mine operations is withheld from stockholders in San Francisco, and as the law in Nevada is neither made by or for the people no particular difficulty is encountered in doing this. At the same time it is seems curious that when, on an average, about 800 tons of ore is being sent to the mill each week with the assays running all the way from $18 to $21 per ton, no notice of bullion returns is being made weekly, and the company finds the treasury so near depletion that a 50c. assessment has been levied this week. Readers of the ENGINEERING AND MINING JOURNAL are fairly well acquainted with the methods of mine and mill management on the Comstock. One or two facts in connection with the Yellow Jacket mine will probably not be without interest. W. E. Sharon is superintendent of the Confidence, Challenge, Imperial and Yellow Jacket mines, for which he receives about $1,000 per month as salary. He is fortunate enough also to be superintendent of the Union Mill and Mining Company, for which he is also well remunerated. The mill company is owned by D. O. Mills, F. Newlands, J. P. Jones and the Sharon estate, and as superintendent it devolves upon Mr. W. E. Sharon to make contracts with the various mining companies for the milling of their ores. He is, therefore, placed in the anomalous position of having to make a contract with himself as superintendent of the Yellow Jacket for the reduction of its ore. W. E. Sharon, the mill superintendent, charges W.E. Sharon,the mine superintendent, $7 per ton of ore reduced. There is an additional $1 per ton charged by the railroad for transporting the ore from the mine. This is a profitable arrangement for the mill owners and the Virginia & Truckee railroad, two-thirds of which is owned by D. O. Mills, and one-third by the Sharon estate, but the mine shareholders, as usual, are left out of all calculation.

NEW MEXICO.

GRANT COUNTY.

TEEL & POE MINING COMPANY.—This company is shipping a carload of ore a day to the Rio Grande smelter at Socorro. The ore averages 50% lead and 7 oz. silver per ton. This company is now sinking for water, and as soon as an ample supply is found it will put in a steam pump and operate a number of jigs to dress the second-class ores.

SIERRA COUNTY.

A strike recently made by John Bennett and John Fricke, six miles southeast of Kingston, near the summit of the Black Range, is said to be important. From 20 in. at first the vein has widened out to over 30 in. and rich croppings are found the entire length of the claim. The vein, which has a strike northwest and southeast, has been traced diagonally aross the range for a distance of three miles.

BONANZA.—The long tunnel which is being driven through the mountain is nearly completed. Three shifts are now being worked in each heading. This tunnel will give a vast extent of backstoping ground and the output of the mine will be materially increased as soon as it is finished.

GARFIELD.—The ore is now being sorted, the first-class being shipped to Denver and the second stored at the mine to be dressed. The main working tunnel is in 480 ft., the breast being 370 ft. vertically below the surface. The tunnel shows a strong fissure 5 ft. wide, with hard smooth walls.

PALOMAS CHIEF.—A new ore body, assaying high in silver, has been opened by the southwest drift of the 200-ft. level in this mine at Hermosa.

NORTH CAROLINA.

MONTGOMERY COUNTY.

RUSSELL MINES COMPANY, LIMITED.—An extraordinary general meeting of the shareholders was held in London on the 25th ult. at which over 76,000 shares out of a total of 100,000 were represented, either in person or by proxy. Mr. Thomas Stephens, chairman of the company, presided. The secretary, Mr. Edward Ashmead, having read the notice convening the meeting, the following special resolutions, passed at an extraordinary general meeting held on August 10th, were confirmed: 1. "That it is desirable to reconstruct the company, and that with a view thereto the company be wound up voluntarily, and that Mr. Edward Ashmead be, and is hereby appointed liquidator for the purpose of such winding-up." 2. "That the said liquidator be and is hereby authorized to consent to the registration of a new company, to be named the Russell Mines, Limited, with a memorandum and articles of association, which have already been prepared with the privity and approval of the directors of this company." 3. "That the draft agreement submitted to this meeting, and expressed to be made between this company and its liquidator of the one part, and the Russell Mines, Limited, of the other part, be and the same is hereby approved, and that the said liquidator be and is hereby authorized to enter into an agreement with such new company (when incorporated) in the terms of the said draft, and to carry the same into effect with such (if any) modifications as he thinks expedient."

OHIO.

STARK COUNTY.

A mass meeting of all the miners in the Massillon district has been called in Massillon on the 11th inst., to decide whether they shall demand the removal of all "check doors" or "breakers" now in use on screens, their presence being the cause of the strike now on at the Forest mine.

OREGON.

GRANT COUNTY.

MONUMENTAL MILLING COMPANY.—Articles of incorporation of this company were filed recently. The incorporators are H. A. Hogue, W. B. Gilbert and B. P. Cardwell, and the capital stock is $30,000 in shares of $1 each. The object of the company is to buy and reduce ores at a mill in Granite Creek district, which it has taken over, and to do custom work. This will be good news to owners of mines in the Granite and Greenhorn districts, and will put new life, says the Portland *Oregonian*, into the mining interests there. The mill referred to is that of the Monumental Mining Company which has been idle and in litigation for several years. It is a fully equipped, 20-stamp, dry crushing silver mill, which cost $100,000, adapted for working gold and silver sulphuret ores, of which there is a great deal in the districts above mentioned. The mill will be started up at once.

PENNSYLVANIA.

COAL.

The rope on the Ashley Plane of the Central Railroad of New Jersey broke on the 9th inst. as a train of loaded coal cars was being hoisted. The cars rushed down, tore up the track and piled up at the bottom in a heap of ruins. Eleven cars were smashed to splinters, and the plane will be useless for some days.

The coal miners at Cook & Sons' mines at Allison station, on the Chartiers branch of the Pittsburgh, Cincinnati & St. Louis Railway, have struck. They had engaged a check weighman, but the firm discharged him, as he had been taken from another mine. President Costello, of Division No. 5 of Mine Workers' Union, after investigating the matter, sanctioned the strike. It is believed that the strike will not last long.

There was a fair attendance at the special convention of the United Mine Workers at Scottdale on the 7th inst. Several resolutions were passed, among the most important of which was an appeal to the proper authorities for the enforcement of the law regarding the abolition of the "company stores." The convention claimed that the company stores of the coke region are being operated in the same way as before. A resolution was also passed to use all endeavors to secure reprieves for Barrrett, McSloy, Disman and Coleman, the imprisoned coke-strike leaders.

SOUTH DAKOTA.

LAWRENCE COUNTY.

The regular semi-monthly bullion shipment from the Homestake and associated mines was made on the 3d inst. There was one small brick, valued at $7,000, from the Caledonia, and six large ones having an aggregate value of $256,000, from the Homestake, Highland and Deadwood-Terra companies.

TENNESSEE.

The extraordinary general session of the Forty-seventh General Assembly, called by the Governor to consider a revision of the convict labor laws, resulting from the recent troubles at the mines of the Tennessee Coal Mining Company at Briceville and Coal Creek, was begun on the 31st ult. In his message Governor Buchanan treated the question at considerable length. He favored the amendment of the criminal laws of the State so as to change the grade of small crimes. He recommended that criminal costs be paid by each county in which the cases are tried, and favored the employment of short-term convicts on public roads and other works of a public character. He thought that only those whose liberty is dangerous to society ought to be incarcerated in state prisons. He discussed the advantages and disadvantages of the lease system, and thought that there would be trouble with any system as long as there are a large number of criminals. He recommended the state account system if the criminal laws are amended, but said: "If the criminal laws are not changed and the State has from 1,500 to 2,000 convicts to employ, I believe that it would be the best policy for the State to purchase or lease coal and iron lands and locate the prison thereon and employ the convicts in mining coal and iron ore and manufacturing iron. These plans are offered with a view of the abolition of the lease system after the present contract with the State has expired." As to working convicts in coal mines, he said: "No further encroachments should be made into the territory into which miners have gone and commenced the labors, and the power of the Prison Inspectors should be clearly defined, and if necessary increased, in order to give them authority to say where and how the convicts should be worked." He said that if the present lease be abrogated at once it will cost Tennessee $1,000,000 within the next two years. Members of the Senate and House offered bills to provide life imprison-

ment for prisoners twice convicted of felony, and to require counties to care for convicts sentenced to imprisonment for less than five years.

The discussion of the question in both houses has been active. On the 4th inst. much excitement was occasioned in the Senate by the discussion of a resolution offered by Mr. Alexander, reviewing the disturbance at Briceville in July, the intimidation of the authorities and law-abiding citizens by a mob, and the release of the convicts in the mines at Briceville and Coal Creek. The mob, the resolution said, was excited by the incendiary speeches of certain leaders. Mr. Alexander also said in his resolution that threats were now being made of a repetition of the scenes at Coal Creek and Briceville and the release of the convicts at these and other places. The resolution directed the Governor to offer a reward of $500 each for the apprehension and conviction "of Eugene Merrill, M. Ingraham, John Hatmaker, and George Irish, and any other person known to have actively, by speeches or otherwise, aided, abetted, or excited the miners and others to the aforesaid acts of lawlessness and rebellion: and, further, that a reward of $500 be offered for the arrest and conviction of any person who shall hereafter feud and incite these miners or other people to any such acts of lawlessness." This resolution was finally laid on the table.

On the 5th inst. bills were introduced in the Senate and House, by Mr. Penland, and Mr. Davis, respectively, to repeal the convict lease law, and the question is now fairly at issue.

UTAH.

Ore and bullion receipts at Salt Lake City during August amounted to $1,029,861, of which $451,018 was in bullion and $565,843 in ore. The total for the first eight months of the year is $3,203,529, of which $3,204,811 was in bullion and $2,998,718 in ore.

BEAVER COUNTY.

HORN SILVER MINING COMPANY.—Hon. P. S. Farnsworth, superintendent of the mine, reports that it produced last month about 2,300 tons of ore. The ore market being overstocked at present the company has been obliged to reduce its working force and produce only the amount of ore it can sell readily. The mine is said to be looking extremely well.

CACHE COUNTY.

It is reported that a seam of semi-anthracite coal of excellent quality has been discovered in Logan cañon, about five miles from Logan.

JUAB COUNTY.

It is reported that the experiments on Tintic ore with the Russell process at Park City have been highly successful, a test lot of the Northern Spy ore having worked up to 93%, while most of the other ores yielded as much as 90%. It is said that the result of these experiments will settle the question of large leaching works for the treatment of low-grade Tintic ores, and that a mill capable of treating 200 tons per day will be erected at some point in Utah valley where there can be obtained a sample supply of water. The present leaching works at the old Mammoth mill have been enlarged to a capacity of 75 tons a day, and are treating tailings and dump rock at a good profit, the proprietors having just made a contract for 2,000 tons of ore from the second class dump at the Mammoth mine.

KEYSTONE MINING COMPANY.—Two new bodies of ore have been opened in the Keystone mine, one in the 500 level east and the other in the 700 level north. They are said to be the richest ore bodies yet found in the property.

SNOWFLAKE MINING COMPANY.—This company has been organized with a capital stock of $500,000, in 100,000 shares, to take over the Snowflake mine, near Eureka, lying between the Eagle mine and the property of the Eureka Hill Mining Company. The incorporators and officers are W. W. Chisolm, president; Isaac Wolf, vice-president; Wm. Hatfield, treasurer; and J. D. Kendall, secretary. The Snowflake has about 900 ft. of tunnels, shafts and drifts, and has in the past produced a considerable amount of ore of good grade.

TETRO MINING COMPANY.—This company has been organized with a capital stock of $300,000 in 300,000 shares of $1 each to take over the Tetrault mine, Tintic District. The office of the company is in Salt Lake City. The officers are as follows: Noah McChrystal, president; Auguste Tetrault, vice-president; Harry T. Duke, treasurer; William R. Wallace, secretary. These with James A. Pollock form the board of directors.

SALT LAKE COUNTY.

OLD JORDAN & GALENA MINING COMPANY.—The Old Jordan and South Galena Mining Companies have consolidated under the title Old Jordan & Galena Mining Company. The capital stock of the company is $2,000,000, divided into 20,000 shares of the par value of $100. The officers of the company are as follows: L. E. Holden, president; A. F. Holden, secretary; W. S. McCornick, treasurer; and W. M. Bradley, secretary.

SUMMIT COUNTY.

DALY MINING COMPANY.—The ore sales in August amounted to $32,966. Since January 1st: ore sales, $168,509; sulphides, $220,195.

GLENCOE MINING COMPANY.—The large water tank at the concentrator was completed on the 4th inst. and the mill started running again, and is now turning out concentrates of good grade. It is expected that sufficient water will be stored at night to keep the mill running during the day to its full capacity. Considerable disappointment has been felt at the failure of the Utah Central road to complete its track to the vicinity of the mine, as the expense of hauling concentrates to the Park is considerable.

MASSACHUSETTS MINING COMPANY.—Saturday, September 5th, was the day set for the sale of the delinquent stock of this company, but the sale was stopped by an injunction served by W. S. McCornick and others on the ground that the assessment was excessive and exorbitant. The sale of the stock was postponed until the 3d day of October.

ANCHOR MINING COMPANY.—The force of men which has been at work in the shaft has been transferred to the tunnel stopes, which are producing about 125 tons of ore per day.

ONTARIO MINING COMPANY.—The bullion product in August was $78,122; ore sales, $91,988. Since January 1st: bullion, $641,662; ore sales, $468,158.

PARK CITY MINING COMPANY.—This company has leased to Charles Buhler, Charles Hauter, Victor Holmquist and Chris Slagle, the Chance and Europe claims for a term of 18 months. The property is situated next the Northland Nevada claims, and is considered to contain very promising ground. A shaft will be sunk, work on which will be commenced about the 15th inst., and will be continued during the winter.

WASHINGTON COUNTY.

DIXIE MINING COMPANY.—This company is erecting a copper furnace at St. George for the reduction of its ore.

WEST VIRGINIA.

KANAWHA COUNTY.

KELLEY'S ISLAND COAL AND COKE COMPANY.—A chancery suit has been instituted in the Circuit Court of Charleston against this company, and a vacation order entered appointing R. S. Carr, of Charleston, special receiver of the company. The company has works at Cedar Grove.

MINERAL COUNTY.

ELK GARDEN.—This colliery, recently opened, has a capacity of 2,600 tons a day. It is a 14-ft. vein, and embraces or covers an area of 260 acres. The entire length of the main heading is at present 5,750 ft. Three shifts of men are at work underground. Two 40 horse-power engines furnish the power for the underground haulage system.

WYOMING.

The Dakota, Wyoming & Missouri River Railway Company has been incorporated to build a road from Rapid City through the Black Hills, a distance of 30 miles, to Mystic, where it will intersect the Burlington & Missouri River road. From Mystic it will be extended to the Wyoming coal fields, a distance of 45 miles. Work has already been commenced on the road, which, it is expected, will be in operation by Jan. 1.

UNION PACIFIC COAL COMPANY.—During the month of August the shipments of coal from the Rock Springs mines were about 5,300 cars, which was 100 cars more than any previous month's record.

CARBON COUNTY.

A stage line is now running between Carbon and Gold Hill. The distance is 35 miles and the fare $5.

PASS CREEK.—Small shipments have been commenced from this mine, which is now being operated by M. L. Harbison. The coal is said to be of better quality than that of the Carbon and Rock Springs mines, and especially adapted for blacksmith purposes.

FOREIGN MINING NEWS.

BOLIVIA.

ROYAL SILVER MINES OF POTOSI, LIMITED.—The product of this company's mines in Bolivia for the first half of the current year is said to have been 149,415 oz. of silver against 79,152 oz. in the corresponding period of 1890. The total of last year's production was only 141,755 oz., owing to want of water, which necessitated the closing down of the works for the last three months of the year.

CEYLON.

Coal has been discovered in the district of Puselawa, under conditions said to be very favorable for economic working. The discovery is one of great importance, as the supply of wood available for fuel in the island is rapidly diminishing, and the coal that is imported from England and Australia costs from £2 to £4 per ton.

FRANCE.

It is reported that large beds of antimony ore have been opened in the neighborhood of Brazeins, province of Aveyron. Some 150 tons which have already been mined have yielded metal of good quality. Steps are being taken for the thorough exploitation of the deposits.

GERMANY.

A rich seam of coal has been opened at Rudolfswaldau, near Waldenburg, in Silesia. Herr Güttler, director of mines at Altwasser, has obtained the lease of it. It is reported that boring operations in the neighborhood of Sohrau have been successful.

GREECE.

HELLENIC MINING COMPANY.—The balance sheet of this company for the first half of 1891, shows a production of lead of 3,787,571 kilos. valued at 2,303,608 drachmas, (one drachma = 19.3 cents; the working expenses were 1,684,437 drachmas, leaving a profit of 439,956 drachmas. The Attic Railway Company, which is owned by the Hellenic Mining Company, showed net earnings of 99,616 drachmas for the half year. The mining company paid a dividend of 6 drachmas per share for the half year, being the same amount as in the preceding six months.

ITALY.

ENGLISH CROWN SPELTER COMPANY, LIMITED.—The eighth ordinary general meeting of the shareholders of this company was held in London on the 18th ult. to consider the report of the directors for 1890. According to the latter the profit of the company during the year had been £13,943, against £11,070 in 1889, which up to this time had been the most profitable year in the history of the company. The increased profit in 1890, which was mainly due to the high price of spelter, was earned in spite of increased cost of coal and labor. The average cost of ore ex ship at Swansea was £3 15s. per ton in 1888, £3 10s. 6d. per ton in 1889 and £3 5s. in 1890. Of the saving in cost in 1890, 1s. 10d. per ton was on freight and the balance on mining. The company raised 6,644 tons of ore from its own mines and purchased 3,259 tons of blende, zinc ashes, etc., from the Modigliani mines, producing 4,945 tons of spelter which sold at an average price of £23 2s. 7d. per ton. The company acquired an interest in the New Minera Mining Company, Limited, owning and operating property adjoining the famous Minera mines. The partial withdrawal from the market of the rich and high-quality Minera blende has had a prejudicial effect upon the smelting results of the English Crown Spelter Company, and the latter hopes to make good the loss of this ore through the New Minera. The New Minera, which was opened in October, 1890, is now being wrought in eight places, all in paying rock. The English Crown Spelter Company declared a dividend of 5% or £4,200, making 10% paid for 1890, and leaving a balance of £5,575 in the treasury.

PERU.

The Bureau of American Republics at Washington, D. C., has received a copy of the message of the president of Peru at the recent opening of Congress, from which it appears that the mining industry in Peru has made great progress during the past year, especially in connection with the petroleum wells. In 1890, 120 claims had been taken up, and August 1st, 1891, that number had been increased to 431 without taking into account the claims of which possession could not be given on account of the state in which the heavy rains had left the roads.

SOUTH AFRICA.

It is reported that a 4-ft. seam of coal has been found at a depth of 40 ft. about four miles from Potchefstrom and within three miles of the projected Free State Railway.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Sept 11.

Heavy Chemicals.—The market for heavy chemicals has strengthened considerably during the past week. Business has made a perceptible advance in point of volume, inquiry has become more brisk, and indications generally point to an upward movement. From across the ocean we hear that there is much uncertainty in the market owing to the formation of several concerns designed to antagonize the Alkali Union. In the local field we hear quite a different story, namely, that there is a feeling that the Alkali Union is apt to advance prices at almost any time.

The better tone is without doubt to be attributed to the usual fall trade contingent upon resumption of operations in the glass factories. This has not become general owing to certain labor difficulties, but is sufficiently widespread to make itself strongly felt.

Caustic Soda, 70%-74%.—The demand has been rather light. Sales of several hundred dms. are noted at 3·02½@3·05c.; 76% (Greenbank): demand is fair at 3·25c.; 77%: stocks are low and prices firm at 3·15c.

Carbonated Soda Ash.—The demand is mostly of a spot nature, orders coming from the glass factories in good volume. There are, however, some dealings in futures. We quote 48% 1·52½@1·65c, according to brand; 58%, 1·45@1·55c.

Caustic Soda Ash.—The spot stock is light, with the usual jobbing demand. During the week there have been a number of transactions in futures. We quote 1⅝c.

Alkali.—The market for both spot and futures is decidedly active. B. M. rules at 1·50@1·55c. High test B. M. continues to come in freely. However, there is no pressure to sell stocks. Futures are quoted at 1·45@1·47½c.

Bleaching Powder.—A slight improvement over last week is manifest. Stocks are light, as is also the demand. We quote 2·05@2·10c.

Sal Soda.—Stocks are very light. Spot is quoted at 1·20c., futures at 1·10c.

Acid.—The acid market is the scene of great activity. All the manufacturers report a good business, a number of them claiming that they have not the capacity to fill all orders offered. This demand has been brought about by the resumption of operation in the textile and fertilizer manufactories. There is also the general fall demand from other sources. As maintained in this column from time to time, the capacity of the different acid plants has been decreasing instead of increasing during the past year, while there has been manifest a steadily increasing demand. The result has been that the trade is bare of material in the face of a most active demand. Notwithstanding this condition of affairs, reports are to the effect that a certain element of the trade still continues its suicidal policy of cutting the ruling low prices in certain sections of the East. The feeling seems to be that if every one interested would sell at ruling quotations higher prices would follow. There is the usual rumor abroad of a contemplated combination of manufacturers, which, it is alleged, will be perfected during the fall, with a view of purifying the trade and establishing higher prices. We quote: Acid per 100 lbs. in New York: Acetic, $1.65@$1.75; alum, lump, $1.60@$1.70; muriatic, 18°, 90c.@$1; muriatic, 20°, $1@$1.12½; muriatic, 22°, $1.12½@$1.25; nitric, 40°, is selling for $4.50, and from that upward, according to quality, etc.; nitric, 42°, $5@$6; oxalic, $7@$7.25; sulphuric, 60°, 75c.@$1; sulphuric, 66°, 85c.@$1; tartaric, $3.30@$3.40.

Blue Vitriol.—The market is still weak in the face of abundant stocks. We quote 3¼@3½c. These prices can be shaded slightly.

Brimstone.—There are 25 tons in store which constitute the available spot stock; $30 is being offered with no sales. For September and October delivery $27.75 is being offered for seconds and $27 for thirds. The past two months have been sufficient to prove the strength of the European manipulators, and acid makers find themselves face to face with the old problem of obtaining material.

Fertilizers.—The usual fall demand is placing the fertilizer market in a very satisfactory condition. The demand for futures is steadily increasing. This is stiffening prices, although it has as yet occasioned no marked advance. Indications point to a very brisk and satisfactory fall trade. We quote: Sulphate of ammonia, 3·05@3·10c. It is reported stronger in Europe, and in consequence, 3⅛c. is quoted for October shipments. Bone sulphate, 3·02½@3·05c. Dried blood, $2 per unit. Tankage, $19@$21. Azotine, 1·95c. Bone meal, $21.50@$22.50. Acidulated fish scrap, $11.50

Double Manure Salts.—We quote the syndicate price of 1·10@1·12½c. for 48%. For 90% to 95% basis, 90% foreign invoice, weights and lists, 2·07½@2·10c. Lots under 50 tons are proportionately higher.

The demand for South Carolina phosphate rock is steadily increasing. We quote for land rock $7@$8, wet and dry, respectively, f. o. b. vessels at mines, and $7.25@$8.25 f. o. b. cars. High-grade river rock is scarce. Low grades taken from the marshes are selling at about $7.25.

Kainit.—Quiet, light stocks, and nominal demand. We quote the old price of $8.75@$9.25, according to quantity.

Muriate of Potash.—Arrivals during the week amounted to 200 tons, all of which went into consumption. No sales. Prices remain $1.77½@$1.82½, according to quantity.

Nitrate of Soda.—The market, in the face of a very large stock, has stiffened materially; 1·90c. is quoted for spot, and 1·95@1·97½c. for futures. There are in store in this country 78,000 bags, with 394,000 bags in sight.

NOTES OF THE WEEK.

The Archdale Phosphate and Mining Company, of Charleston, S. C., with a capital stock of $12,000, has been organized. Earle Sloan is president, and George Gibbon secretary.

The Florida Central & Peninsular Railway Company will erect at Fernandina, Fla., a plant for the storage of phosphate rock. It will include five conveyors, 230, 464, 210, 164 and 125 ft. in length, and be of capacity of handling two tons of rock per minute.

Beck & Co.'s salt works, in Pittsburg, Pa., were entirely destroyed by fire on the 3d inst. The loss will reach $30,000, on which there is no insurance. The destroyed works were established 75 years ago. The origin of the fire is unknown. It is stated that the works will be rebuilt at once.

Mr. James A. Chambers, window-glass manufacturer at Pittsburg, Pa., it is said, will make an assignment for the benefit of creditors. H. S. McKee, Mr. Chambers' partner in the glass business, is the largest creditor, holding his paper for about $200,000. All the others were willing to grant an extension. The assets, it is said, will equal the nominal liabilities, exclusive of indorsements. The indorsements have been principally on paper issued by the Standard Plate Glass Company, whose assets and liabilities are each given in round figures at $500,000. The principal stockholders in the Standard Company are Mr. Chambers, Mr. McKee, and Mr. W. E. Schmertz, who failed recently for about $700,000.

Liverpool. Sept. 2.

(Special Correspondence of Geo. G. Blackwell.)

Minerals.—Our market has continued to rule steady during the week. Manganese: Arrivals have been somewhat larger, but prices are unaltered. Magnesite moves slowly, and prices are unchanged; raw ground £6 10s., and calcined £12 10s. Bauxite (Irish Hill brand) continues in good demand, bringing top prices; first lump 20s., second 16s., and third 12s. French chalk: Arrivals have been somewhat above the average; all, however, have gone into consumption; stocks have been further drawn upon, and prices are firm, especially for G.G.B. Barytes: Carbonate easy, whilst finest white sulphate is scarce; "Angel White," No. 1, 70s.; No. 2, 60s @ 65s; No. 3, 45s. Pumicestone: Picked lump steady; ground, more doing. Iron ore, manganiferous, Santander and other qualities easier; Irish and Cumberland inquired for. Emerystone: Best qualities still in good demand for home as well as export, bringing full figures; No. 1 lump £5 10s @ £6; smalls £5@ £5 10s. Scheelite, wolfram, tungstate of soda and tungsten metal continue scarce, sales being made at increased figures. Chrome ore steadier; prices unchanged. Antimony ore and metal a downward tendency. Asbestos easier; Potter's lead ore of best quality steady; smalls, £13 to £14; selected lump, £15@£16. Felspar and fluorspar easier. Ferro-manganese, somewhat easier; 75%, £12; 85%, £13 15s. Plumbago: A fair business doing at good prices. Spanish, £6; best Ceylon lump at last quotations; Italian and Bohemian, £4@$12 per ton. Ground mica, £50. China clay steady; common, 18s. 6d; good medium, 22s. 6d @25s.; best, 30s.@35s. (at Runcorn).

(Special Correspondence of J. P. Brunner & Co.)

The demand for heavy chemicals is not active, notwithstanding prices have been advanced in some cases. The Union is now prepared to receive bids for forward delivery, but buyers are not anxious to contract in view of several opposition concerns in bleaching powder and caustic soda which are in process of formation.

Soda ash is in limited supply and quotations for high tests have been advanced. The nominal quotations on the spot are as follows, all net cash: Caustic ash, 48%, £5 2s. 6d.; 58%, £6 15s. per ton; carb ash, 48%, £5 7s. 6d.; 58%, £6 15s.; ammonia ash, 58%, £6 10s. per ton.

Soda crystals have been advanced both here and on the Tyne. Quotations f. o. b. here are now £3 6s. 3d. to £3 7s. 6d. per ton, net cash.

Caustic soda is dull but steady. Prices are as follows, all net cash: 60%, £9 10s.@£9 15s. per ton; 70%, £10 15s.@£11 per ton; 74%, £11 15s.@£12 per ton; 76%, £13 and upward. The Union is prepared to make concessions for 1892 delivery, but buyers are quite indifferent, and hold aloof.

Bleaching powder is quiet at £7 10s.@£7 15s. per ton for hard wood, September delivery, and 5s. per ton advance asked for October-December, or for contracts over 1892. Buyers are not anxious to contract for next year, as they are hoping to do better when the opposition concerns get to work.

Chlorate of potash is dull at 5¾d. per lb., less 5%. Bicarb. soda is in demand at £6 15s.@£7 per ton, less 2½%, for one cwt. kegs, according to brand and quantity, with usual allowances for larger packages.

Sulphate of ammonia has gone back, and is now quoted at £10 18s. 9d@£11 per ton for good grey, 24% in double bags, and £11 2s. 6d@£11 5s. per ton for 25%, in double bags, f. o. b. here.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Baltimore, Denver, Kansas City, Birmingham, Ala., Pittsburg, St. Louis, London, and Paris, see pages 324 and 326.]

NEW YORK, Friday Evening, Sept. 11.

The old, old story of dullness at the Exchange may be reported this week. It is, however, encouraging to note a growing desire to deal in the more reputable mines, and to eschew all trading in "cats." During the week a tendency was evinced to buy some stocks on their merits, and we are assured by one of the most prominent of our mining brokers that there has been considerable more inquiry for better mines.

During the week there were 29,000 shares sold, of which 5,500 were dividend payers, and 23,500 non-dividend. Last week there were 4,138 dividend-paying shares sold, and 19,850 non-dividend payers, making a total of 23,988 shares sold, an increase of 5,012 shares this week.

The Comstocks were traded in to a less extent than last week. Alta shows a single sale at 55c.; Best & Belcher another at $3.65, and Chollar one of 200 shares at $2.15. Comstock Tunnel stock appeared in some demand, and 3,600 shares were sold at 16c.@19c. Mexican was quiet at $2.50; Scorpion had one sale at 45c.; and Utah, one of 500 shares at 70c. Union Consolidated advanced from $2.35 to $2.60. Belcher was stationary at $1.80.

Consolidated California & Virginia was very quiet during the week, only 50 shares being sold at $7.50. Crown Point was dealt in to the extent of 100 shares at $1.75, and Gould & Curry, 200 shares at $1.80. Ophir shows two sales of 100 shares each; the first at $3.90 and the second at $4.25. Sierra Nevada was quiet at $2.20, as was also Yellow Jacket at $1.50.

Among the Tuscaroras we note a sale of 100 shares of Navajo at 20c., and another of Nevada Queen at 25c. Commonwealth was dealt in this week to the extent of 300 shares at 30c.

Oriental & Miller, which had not been dealt in for a long time, shows a sale of 200 shares at 4c.

Among the Black Hills stocks, Caledonia was steady at 65c, with 700 shares sold. Deadwood Terra was in greater demand and this week advanced to $1.95, with sales of 400 shares.

The California stocks appeared to be the favorites during the week. The trading in Standard was one of the features. Due to the favorable reports from the mines, the stock was dealt in to the extent of 1,300 shares, and at the close sold at $1.25. Astoria continues to show numerically large transactions, and this week was dealt in to the extent of 6,500 shares at 2c. We understand, however, that private sales have been made at 1c. Belmont shows sales of 1,700 shares at 85@86c., and Brunswick 2,700 shares at 10@11c. There were 200 shares of Bodie Consolidated sold at 60c.

The Colorado stocks were dealt in slightly more than last week. Lacrosse shows a sale of 600 shares at 5c., and Phœnix Lead one of 200 shares at 12c. Leadville Consolidated was dealt in to the extent of 1,000 shares at 12c. and Robinson Consolidated shows a single sale of 300 shares at 35c.

Augusta, which for many months has not been dealt in, and, indeed, which has been dealt in but very slightly since its listing at the Consolidated Stock and Petroleum Exchange, had a sale of 200 shares at 10c. Castle Creek, another long stranger to the exchange turns up this week with a sale of 500 shares at 4c.

Silver Mining, of Lake Valley, which had also become quite a stranger, was dealt in during the week, 100 shares being sold at 40c. The trading in Phœnix, of Arizona, was one of the features. There were 3,000 shares sold, the stock advancing from 45c. to 51c. Mr. Bradstreet, the president of the company, writes that he is working satisfactorily with the dam and thinks that there will be enough water to run 100 stamps during the dry season.

Boston. Sept. 10.

(From our Special Correspondent.)

Copper stocks have shown a good degree of activity the past week, and prices have been well sustained, with few exceptions, throughout the list. The Montana stocks, as usual of late, have been the leaders, and there seems to be more disposition to trade in them than in the Lake stocks. Boston & Montana touched $50, and Butte & Boston $20, the highest points for the year. Among the Lake, stocks Centennial, Kearsarge and Osceola have been the most active, and all of them show an advance over last week. The prevailing opinion seems to be that an active market and higher prices are probable for the balance of the year.

Calumet & Hecla is very strongly held, and on small sales advanced from $265 to $273. Tamarack also advanced, from $170 to $175 on sales of less than 100 shares.

Allouez declined from $2¾ to $2, on the announcement of an assessment of 50c. per share. Arnold sold at $1¼, the same price as last week. Atlantic was barely steady at $16. National sold at $3⅝@$3½.

Centennial advanced from $19 to $20¾, losing the fraction to-day. Kearsarge sold up to $17, closing at $16½. Osceola advanced to $41¼, a gain of $1¾ for the week. Franklin sold at $18, and declined to $17½. The fire at the mine will delay active operations for a short time.

Butte & Boston after selling at $20 declined to $19¾. Boston & Montana which sold at $50 yesterday declined to $49 to-day.

Santa Fé was steady at 60c. Huron sold at 1½c. Humbolt at 45c. Tecumseh advanced from $3½ to $3⅝.

Quincy early in the week sold at $110. The Stock Exchange has stricken the Quincy from the list, and dealings in the stock are forbidden.

In silver stocks we note sales of Dunkin at 50c. and Napa Quicksilver at $4.

3 P. M.—Since the noon hour the market has ruled heavy. Boston & Montana sold at $48⅞. Butte & Boston at $19½. Osceola declined to $40 and Tamarack to $172½. Centennial and Franklin were steady, the former at $20 and the latter at $17½.

San Francisco. Sept. 3.

(From our Special Correspondent.)

Ever since the Supreme Court held that buying stock on a margin was an infringement of a certain section of the Constitution, Pine street dealers have been considering how they could evade the decision. There are a few of the more conservative brokers who maintain that the "buying on margin" referred to in the Supreme Court decision in reality refers to dealing in futures, and they continue to handle margin accounts as heretofore, leaving the matter to be more definitely ajudicated upon at a future date. Another and perhaps a larger class of brokers, however, has accepted the Court's decision, and is endeavoring to evade it. The old form of order to buy or sell stock in San Francisco which a customer was obliged to fill in when proposing to deal with a broker, was a one-sided document, but a new

form is now in use in many of the offices which for ironclad provisions far surpasses the other, and does not give a client a ghost of a chance to call his broker to account. The new form, omitting the name of the firm at the top, is as follows:

TERMS AND CONDITIONS UPON WHICH WE DO BUSINESS.—READ THEM.

We will act as agents and brokers in the purchase and sale, for cash only, of stocks and bonds for our principals, in all cases making or accepting full cash payment only, on purchases and sales, and will charge a commission for our services; we will loan and advance money on stocks and bonds and advance part of the purchase price of stocks or bonds purchased on behalf of our principals, and the amount of assessments which may become due on stocks, and will charge interest at the rate of 1½% per month, compounding monthly, on any money so loaned or advanced; we will make such loans and advances with the express understanding that all bonds and stocks upon which we make them, or upon which we loan or advance part of the purchase price or assessments, are, and shall be and remain, the property of our principal or of the person to whom any loan or advance is made thereon, subject only to our interest therein as pledgees, as hereinbelow specified; all stocks and bonds upon which loans or advances are made by us for any purpose, shall be deposited by the owner thereof with us, or delivered to us on his behalf, and held by us in pledge and as collateral security, for the payment of any and all moneys loaned or advanced by us thereon, and of any and all commissions and interest due or to become due to us, and of any and all moneys owing to us by the owner, for any cause, at any time while we hold the same, and the proceeds of all sales of stocks or bonds of such owner shall be applied to the payment of such loans and advances, commissions and interest at the rate of 1½% per month; interest at said rate shall be payable monthly upon any balance or sum then due us; any and all stocks and bonds, or any part thereof, deposited with us in pledge, may be sold to pay such indebtedness, or any part thereof, at any time, at our option and discretion, at private sale, or in the San Francisco Stock and Exchange Board, or elsewhere, without notice of any kind, of the time or place of sale, and without any notice whatever, and without any demand for the payment of such indebtedness, or any part thereof, and without any demand whatever, whenever such colateral security is deemed insufficient by us; and we shall be at all times the sole judges of the sufficiency of the security; demand of payment, and notice of the time and place of sale, shall be deemed waived in all cases; we shall not be obliged or required to keep on hand the identical bonds or certificates of stock purchased or pledged, but it shall meet all obligations and requirements on our part, if we shall have the same number of the same bonds, or the same number of shares of the same stock, to surrender to the owner when redeemable or property deliverable, and properly demanded; we engage and agree to hold ourselves in readiness, and to be able at all times, to surrender to any and all owners, all stocks and bonds purchased by us as agents and brokers, or deposited with us as collateral security, upon payment to us of the amount of the indebtedness thereby secured, or due thereon. All money owing to us shall be payable in United States gold coin. If we sell stocks for our principals not in our hands at the time of sale, we shall have the right to buy them in at any time and in any place, without any demand or notice of any kind. These conditions shall not be varied by any oral agreement, and shall form part of all transactions, whether such transactions, or the orders for the purchase or sale of stocks, are oral or in writing.

CONTRACT.

SAN FRANCISCO, Cal., 189

Subject to all the above terms and conditions, which I have read, and to which I hereby agree, I hereby appoint you my agents and brokers, for the purchase and sale of stocks and bonds, for me, and on my account, and at my risk and expense, as per my orders, whether oral or written, and hereby authorize you to sell any and all stocks and bonds held by you as collateral security, in the manner, and under the circumstances and conditions above specified, to pay any indebtedness, or any part thereof, which may be due from me to you.

It is expressly understood that you shall not share in any profits or losses arising from purchases or sales of stocks or bonds, made by you on my account, and that you shall have no interest in any such stocks or bonds, other than as pledgees.

In consideration of loans and advances heretofore made and hereafter to be made by you, to me, at my request, for the purchase of stocks and bonds on my account, and for other purposes, and in further consideration of the terms of your agreement above set forth, and of your acceptance of this appointment and order, I hereby expressly release and forever discharge you of and from any and all causes and rights of action, claims and demands, of every kind and nature heretofore or now existing in my favor against you, or any of you, on account of any and all transactions of any kind or nature, in stocks or bonds on my account, or for the recovery of any money heretofore, or now deposited by me with you or paid by me to you, for the purchase of stocks or bonds, or for any other purpose, and in consideration of the foregoing matters, I further hereby expressly ratify and confirm all past transactions between us, respecting the purchase and sale of stocks or bonds, on my account, and all deposits and payments of money heretofore made by me to you, or by you on my account, and in consideration of said matters, I further hereby undertake and agree to indemnify you against, and to hold you absolutely harmless from, all losses and liabilities of any kind or nature, on account of any and all past, present and future transactions between us, in respect to the purchase or sale of stocks or bonds, which have been, are, or may hereafter be authorized by me, either orally or in writing.

Subject to all of the foregoing terms and conditions, I hereby authorize and request you, as my agents and brokers, for me, as your principal, and for my account and risk, and at my expense, to .....

This document has been prepared under legal advice, but notwithstanding other lawyers to whom it has been submitted pronounce it invalid for the reason that no one can give permission to a broker to commit an illegal act and one that has been pronounced by the Supreme Court subversive of the public morals and contrary to public good.

During the month of August the appreciation in the market value of Consolidated California & Virginia, Ophir, Mexican, Sierra Nevada, Best & Belcher, Gould & Curry, Savage, Confidence, Crown Point, Challenge and Justice mines amounted to a total of $629,520, against a depreciation in the Alta, Overman, Belcher, Alpha, Yellow Jacket, Exchequer, Bullion, Chollar, Potosi, Hale & Norcross, Utah and Union Consolidated mines of $450,110. This leaves a net gain for the month of $179,420. The assessments on certain stocks on the above list, however, became delinquent during the month, the total sum being $407,650, the only offset being the Consolidated California & Virginia dividend of $108,000.

During the current week no change has taken place in the mining stock market. Trading has continued very dull and the fluctuations in prices have been unimportant. Consolidated California & Virginia sold to-day at $6.62½, as against $6.75 a week ago. Ophir during the same time has shown an advance of 5 cents, selling for $3.75. Mexican at $2.15, Sierra Nevada at $3, and Union at $2.20, have remained fairly steady.

In the middle group of Comstocks, Bullion and Potosi have not received quite so much attention as last week, and the prices then ruling have not been sustained. Bullion declined from $2.85 to $2.10 to-day, and Potosi fell off from $3.70 to $3.05. During the informal session there was a tendency shown by these stocks to strengthen, and as interesting work is being done in the mines a sharp advance will not altogether come as a surprise. Best & Belcher sold at $3.40; Gould & Curry, $1.60; Savage, $2.70, and Hale & Norcross, $1.70.

The Gold Hill stocks have fallen in a rut whence they do not seem to move. The most important of them show a decline for the week ending to-day. Overman has been ruling at $1.20, a decline of 40 cents; Yellow Jacket at $1.40, a decline of 20 cents; Belcher at $1.10, a decline of 15 cents; Crown Point at $1.55, a decline of 15 cents.

The outside stocks continue to remain in the background, trading in them being almost *nil*.

SAN FRANCISCO, Sept. 11th.—[*By Telegraph.*]—The opening prices of to-day are, if anything, slightly lower than the average during week. Best & Belcher opened at $3.45; Chollar, at $1.75; Consolidated California & Virginia, at $6 ⅝; Gould & Curry, at $1.85; Hale & Norcross, at $1.80; Mexican, at $2.40; Ophir, at $3.85, and Yellow Jacket at $1.30.

St. Louis.

Sept. 9.

(From our Special Correspondent.)

The St. Louis mining stock market is about as usual. Prices are slightly better if anything, but business still remains poor. As before, a few stocks monopolize the trading.

Aztec was a new stock to be dealt in. This company has been lost sight of for some time, but its stock sold this week at 10c, 400 shares going at that figure. Afterwards it fell to 5c, at which figure it closed.

Yuma fell off slightly. The market opened firm at 35c., with a sale of 100 shares. Later in the week it fell to 32½c. On Tuesday it recovered somewhat and sold 100 shares at 33¾c., closing today at that figure.

Elizabeth was the leading stock this week. It opened at $2.30 and fell to $2.12½, at which figure 1,400 shares were sold. Later the market broke and $2.05 was the best the stock would bring, while a good deal changed hands at $1.92½, the sales on the decline being 2,100 shares. On Friday the stock recovered somewhat and sold at $2,700 shares going at that figure, while the day following saw the same amount of trading at the same price. On Tuesday the stock opened at $2.10 and sold down to $2.02½, with sales of 180 shares. To-day the market closes at $2.

Mickey Breen improved somewhat this week, and from an opening of 42½c. closes at 55c. Sales amounted to 1,600 shares. The market is very firm.

Montrose opened and closes at 50c. There was only one sale during the week, this being of 100 shares at 32½. The demand was much smaller than in former weeks; yet the market appears very steady.

Mountain Key had but one sale of 100 shares at 23¾c., after which the market fell to 10c. at which it closes.

Silver Age opened at 82½c. and sold at 90c., 100 shares going at that figure. There appeared to be little demand for the stock.

American & Nettie opened at 30c. and during the week 100 shares sold at that figure; later, 27½c at which bid the market closes.

Granite Mountain was quiet throughout the week at $22.00. No sales were made. Weekly shipments amounted to 39 bars, containing 50,880 oz. of silver and 76 oz. of gold.

Lake Superior Iron, Gold and Silver Stocks.

(Special Report by A. M. Helmer, Milwaukee, Wis.)

Iron.	
GOGEBIC RANGE:	
Anvil	$4.00
Ashland	51.00
Aurora	9.50
Bessemer Consolidated Bonds	20%
Brotherton	2.50
Cary	....
Colby	....
Father Hennepin	....
Germania	8.00
Gogebic Iron Syndicate	.25
Iron Belt	2.00
Metropolitan Land and Iron Co.	61.00
Montreal	10.50
North Pabst	2.25
Northern Chief	30.00
Odanah	13.50
Pabst	....
Palm	1.75
Pence	1.25
Penokee and Gogebic Developm. Co.	....
Ruby	....
Ryan	.35
Section 33	13.50
Windsor	....
Wisconsin Iron and Steel Co.	.50
MARQUETTE RANGE:	
American	$2.25
Champion	80.00
Cleveland	16.00
Cleveland Cliff Iron Co.	....
East New York	2.00
Humboldt	....
Iron Cliffs	....
Jackson	104.00
Lake Superior	56.00
MARQUETTE RANGE:	
Michigamme	....
Milwaukee Iron Co.	$5.00
Negaunee	....
Pittsburg and Lake Angeline	140.00
Republic	27.00
Riverside	2.00
MENOMINEE RANGE:	
Aragon	....
Chapin	....
Commonwealth	10.50
Florence	....
Hamilton Ore Co.	....
Lincoln	2.00
Mansfield	....
Mastodon	....
Monitor	....
Norway	....
Paint River	....
Pewabic	....
Quinnesec	....
Sheldon and Shafer	....
Sheridan	5.00
Vulcan	..
Youngstown	....
VERMILION RANGE:	
Chandler	35.50
Chicago and Minnesota Ore Co	100.00
Clingstone	.25
Inter-Ocean	.25
Minnesota Ore Co.	72.50
Northwestern	.25
Pioneer	..
Vermilion	.25
Vermilion P. & L. Co	2.25
Gold and Silver.	
Badger Silver Mining Co.	2.50
Michigan Gold Co.	.30
Peninsula Gold and Mining Co	....
Ropes Gold and Silver Co.	1.50

Salt Lake City.

Prices and sales for the week ending Sept. 5, 1891.

Name and Location of Company.	Opening.	Highest.	Lowest.	Closing.	Sales.
Alice, Mont	1.60	1.60	1.50	1.55	200
Alliance, Utah	....	....	....	....	....
Anchor, Utah	5.00	5.00	5.00	5.00	....
Apex, Utah	.18	.18	.15	.15	6,000
Barnes Sulphur, Utah	.01	.01½	.01	.01½	1,000
Big Hole Placer, Mont.	.17	.17	.12	.12	4,700
Centen'l Eureka, Utah	....	....	....	....	....
Cleveland Cons'l, Utah	.30	.30	.30	.30	500
Congo, Utah	.14	.14½	.13	.14	8,000
Crescent, Utah	.50	.50	.45	.50	3,000
Dalton, Utah	.50	.50	.30	.30	6,000
Daly, Utah	20.00	20.00	20.00	20.00	....
Glencoe, Utah	....	....	....	....	....
Horn Silver, Utah	3.40	3.45	3.30	3.40	300
Malad Con., Idaho	.01½	.02	.01½	.01½	11,000
Mammoth, Utah	2.80	3.05	2.80	2.95	1,000
North Eureka, Utah	....	....	....	....	....
Northern Spy, Utah	....	....	....	....	....
Ontario, Utah	39.00	39.00	39.00	39.00	....
Stanley, Utah	.07	.07	.06	.07	12,000
Utah L. & C. Co., Utah	....	....	....	....	....
Utah Oil Co., Utah	....	....	....	....	....
Woodside, Utah	....	....	....	....	....
Total sales					53,700

ASSESSMENTS.

COMPANY.	No.	When levied.	D'l'nq't in office.	Day of sale.	Am't per share.
*Allouez, Mich.	..	....	Oct. 1	....	.50
Belcher, Nev.	42	Aug. 4	Sept. 7	Sept. 28	.50
Challenge, Nev.	9	July 31	Sept. 2	Sept. 23	.50
Emmett, S. Dak.	5	Aug. 17	Sept. 16	Oct. 1	.002
Exchequer, Nev.	31	July 23	Aug. 27	Sept. 17	.25
Golden Fleece Gravel, Cal.	15	June 30	Aug. 12	Sept. 19	5.00
Gould & Curry, Nev	67	July 22	Aug. 25	Sept. 17	.30
Gray Eagle, Cal.	25	Aug. 12	Sept. 14	Oct. 6	.05
Julia Cons., Nev	24	Aug. 17	Sept. 16	Oct. 8	.10
Mexican, Nev.	43	Aug. 10	Sept. 11	Oct. 6	.25
Monte Cristo, Nev.	5	Aug. 17	Sept. 23	Oct. 14	.25
Mount Terry, S. Dak	3	Aug. 31	Oct. 8	Oct. 29	.001½
New El Dorado, Cal.	2	Aug. 4	Sept. 10	Oct. 2	.05
North Belle Isle, Nev.	18	Aug. 28	Oct. 2	Oct. 30	.25
North Gould & Curry, Nev	13	Sept. 1	Oct. 2	Oct. 19	.10
Pocahontas S. Dak.	7	July 15	Aug. 18	Sept. 15	.001
Savage, Nev.	76	July 16	Aug. 18	Sept. 30	.50
Teresa, Mex.	5	Aug. 11	Sept. 14	Sept. 30	10
Union, Nev.	44	Aug. 31	Oct. 2	Oct. 26	.25
Weldon, Ariz	4	Aug. 25	Oct. 1	Oct. 22	.05
Yellow Jacket, Nev.	49	Aug. 31	Oct. 2	Nov. 7	.50

*Call on capital stock.

MEETINGS.

Silver State Investment and Mining Company, at Room 17, Tabor Block, Denver, Colo., September 15th, at 2:30 P. M.

Wall Street Mining and Milling Company, at the office of John W. Eddy, 216 Power Block, Helena, Mont., September 24th, at 12 o'clock noon.

DIVIDENDS.

Cœur d'Alene Silver Lead Mining Company, dividend No. 16, of two cents per share, $10,000, payable October 5th, at the office of Messrs. Hoge, Brownlee & Co., at Butte, Mont. Transfer-books close September 25th, and reopen October 6th.

Deadwood-Terra Mining Company, dividend No. 33, of five cents per share, $10,000 payable September 21st at the office of Messrs. Lounsbery & Co., Mills Buildings, New York. Transfer-books close September 15th, and reopen September 22d.

PIPE LINE CERTIFICATES.

The Commissioners of the Western Traffic Association on the 10th inst., at Chicago, Ill., handed down a decision in the matter of the application of the Iowa Central for the equalization of through rates on oil. It appears that from certain oil-producing districts the rate to Peoria, added to the established rate beyond, makes a through rate 3 cents higher than the existing through rate via Chicago to the same point. No sufficient reason appears why this inequality should not be corrected as proposed by the Iowa Central, and the Commissioners therefore authorize the establishment of a proportionate tariff on oil in carloads from Peoria to destination, 3 cents less per 100 lbs. than from Chicago, provided that no through rates shall be made lower via Peoria than via Chicago.

CONSOLIDATED STOCK AND PETROLEUM EXCHANGE.

		Opening.	Highest.	Lowest.	Closing.	Sales
Sept.	5.....	57⅜	57½	57⅜	57½	43,000
	7.....	....	....	....	....	.....
	8.....	57½	57⅜	54½	55½	333,000
	9.....	55½	57	55½	56	34,000
	10.....	56	56½	54¾	55	259,000
	11.....	55	56⅜	54⅞	55⅜	225,000
	Total sales in barrels.....					894.000

NEW YORK STOCK EXCHANGE.

		Opening.	Highest.	Lowest.	Closing.	Sales.
Sept.	5.....	59	59	59	59	1,000
	7.....	....	....	....	....	.....
	8.....	58	58	56	56	42,000
	9.....	57	57⅝	57	57⅝	45,000
	10.....	55¼	55½	55⅛	55½	26.000
	11.....	55¾	56	55	56	40,000
	Total sales in barrels.....					154,000

COAL TRADE REVIEW.

NEW YORK, Friday evening, Sept. 11th.

STATEMENT of shipments of anthracite coal (approximated) for the week ending September 5th, 1891, compared with corresponding period last year:

Regions.	Sept. 5, 1891.	Sept. 6, 1890.	Difference.
Wyoming Region. Tons	410,844	357,118	Inc. 53,726
Lehigh Region "	121,708	116,344	" 5,364
Schuylkill Region "	240,783	191,626	" 49,157
Total..... Tons	773,335	665,088	Inc. 108,247
Total for year to date Tons	25,520,065	22,632,772	Inc. 2,887,293

PRODUCTION OF BITUMINOUS COAL for week ending September 5th, and year from January 1st:

EASTERN AND NORTHERN SHIPMENTS.

Phila. & Erie R.R.....	1,856	125,491	90,803
Cumberland, Md.....	70,603	2,811,001	2,569,124
Barclay, Pa.....	2,971	125,637	103,135
Broad Top, Pa.....	10,930	336.072	341,486
Clearfield, Pa.....	68,747	2,694,475	2,567,740
Allegheny, Pa.....	26,766	872,634	890,300
Beach Creek, Pa.....	45,167	1,628,157	1,277,011
Pocahontas Flat Top.....	43,888	1,552,293	1,296,341
Kanawha, W. Va.....	47,271	1,575,670	1,395,530
Total	318,199	11.721.430	10,531,470

WESTERN SHIPMENTS.

	1891. Week.	1891. Year.	1890. Year.
Pittsburg, Pa.....	22,356	849,036	563,515
Westmoreland, Pa.....	27,319	1,361.153	820.788
Monongahela, Pa.....	11,606	408,333	338,695
Total	61.281	2,618,582	1,722,998
Grand total.....	379,480	14,340,012	12,254,468

PRODUCTION OF COKE on line of Pennsylvania R. R., for the week ending September 5th, 1891, and year from January 1st, in tons of 2,000 lbs.: Week, 106,017 tons; year, 2,682,160 tons; to corresponding date in 1890, 3,625,243 tons.

Anthracite.

The output of anthracite coal for the week ending the 5th inst., was 773,335 tons against 665,088 tons for the corresponding period in 1890, being an increase of 108,247 tons.

Affairs in the coal world have commenced to assume a very roseate hue. Retailers are busier than they have been in a year, and an immense tonnage is being moved from the yards to the cellars. Thus are the rather heavy stocks purchased in May being disposed of, and the way is being paved for a brisk fall trade. Already the dealer is in the market with his inquiry, and at the present time, while doing but little buying, is indulging in considerable shopping. Very little investigation, however, seems sufficient to convince him that the companies mean business on the subject of price.

An old-time-healthy fuel trade, which will be apt to extend well into the winter, is looked for after the 15th inst.

As near as can be learned from official reports and a canvass of the trade, the companies are all keeping within their limits in the matter of production.

The sales agents will hold a meeting on the 17th inst. for an informal canvass of the trade.

Bituminous.

The trade improvement mentioned in last week's report continues to become more manifest. The usual small quota of new fall orders is expected the latter part of the present month. The car supply continues to seriously retard operations at Baltimore, and for the time practically places that place as a coal-shipping point out of the market. The car supply on the Pennsylvania is said to be good.

The ocean freight situation continues unsettled. Vessel owners who are now taking cargoes from Philadelphia to Boston for 60@65c., expect to tie up when they reach their destination. There are several hundred vessels tied up along the New England coast. The movement to obtain higher rates seems to be a determined one. Large vessels are being chartered for 60c. In general it can be said that vessels are in great demand, and the tendency is toward a marked advance in prices.

NOTES OF THE WEEK.

The imports of Anthracite coal at Montreal for July, 1891, amounted to 36,492 tons, valued at $140,395.

Largely attended meetings of mine workers have been held at several points through the coal regions of the Wyoming and Lackawanna Valleys, and the drift of opinion is strongly in favor of the enforcement of the Semi-monthly Pay Bill law. The miners claim that the present system of paying once a month has a disheartening and demoralizing effect upon wage earners, and encourages a credit system of trading at stores which is fatal to economical living. The large mine owners, on the other hand, it is said, strenuously oppose the semi-monthly pay system, claiming that if enforced it will encourage drunkenness and extravagance. The miners reply that even if the few who get drunk abuse a good thing there is no reason why the sober, self-respecting thousands should be denied their rights. It is also alleged by the coal companies that they would be greatly embarrassed by the work of paying their men every two weeks, as it would necessitate the employment of an extra corps of clerks and bookkeepers. The individual mine operators say they will be governed entirely in their action by the conduct of the large companies, and representative labor men assert that they would do better to obey the law than wait until they are compelled to obey it, as they assuredly will be prosecuted by Factory Inspector Watchorn.

Boston. Sept. 10.

(From our Special Correspondent.)

The anthracite market is slow to improve, and agents report a firm but quiet tone. Stocks here are very large, owing to large purchases made early in the summer, and it will take some time to reduce them. For a time they will serve as a check to the demand, which in consequence will be later than usual this fall. An occasional buyer is reported in the market, and as the new price is being well maintained he is compelled to pay the full circular rates. Agents have lost none of their faith in the future stability of the market and point confidently to the curtailed production, which is now being enforced.

The bituminous market rules very quiet; the receipts continue large; most all of the shipments are on old orders. The price on cars here is held at $3.40.

Low freight rates continue to prevail. The inquiry for tonnage is small, with large offerings. From New York 40@50c. is quoted; from Philadelphia, 60@65c.

The retail demand is increasing, and the dealers are fast unloading the large stocks which they have been carrying during the summer. The price is held firm. They have not started buying as yet, although, if the demand holds good, they will soon be forced to.

Buffalo. Sep. 9.

(From Our Special Correspondent.)

There is a slight improvement in the coal trade of Buffalo, both in bituminous and anthracite. Private families are laying in their fall and winter stocks. Manufacturers' stocks are running low. Prices remain unchanged for anthracite, and nominally a shade firmer for bituminous. Complaints of insufficient car service are heard of in many directions, but little is said on the subject here. There are no indications of a boom in coal of either variety. Probably some slight advance may be made in prices of anthracite for October.

The propeller "Western Reserve," loaded with 3,000 tons of coal, the largest cargo ever reported, left this port for Chicago on Monday last. This vessel brought down from Chicago on her last trip 117,540 bushels of corn, the champion cargo of the lakes.

The canal movement at this port for the first week in September shows no receipts and 1,610 tons shipments of coal.

Coal is said to be moving more freely at western points, yet the shipments from this port by lake continue light. The receipts from the mines come in quite slowly. At current rates many vessels prefer leaving port light.

The quantity of coal shipped hence by lake westward from September 3d to 9th, both days inclusive, aggregated 50,860 net tons, distributed about as follows: 24,850 to Chicago, 8,500 to Milwaukee, 9,200 to Duluth, 700 to Marquette, 510 to Marine City, 3,850 to Superior, 1,000 to Detroit, 300 to Saginaw, 900 to Gladstone, 650 to Toledo, and 400 to Bay City.

The rates of freight were 40c. to Chicago, Green Bay and Milwaukee; 30c. to Duluth and Superior; 25c. to Detroit, Toledo, and Bay City; 30c. to Marine City, and 40c. to Marquette, Gladstone, and Saginaw.

The quantity of coal passed through the Sault Ste. Marie Canal during August was 428,482 net tons; total for season to Sept. 1st, 1,671,387 net tons, as compared with 1,390,351 tons in 1890, and 992,583 tons in 1889, and 1,445,381 tons in 1888.

Chicago. Sept. 10.

(From our Special Correspondent.)

A very decided and general improvement is noted in demand and inquiry for anthracite. Country dealers are taking coal more freely, and paying 15 to 20c. a ton more than they were a month ago. The scarcity of cars and the shortage of the supply of small egg coal are embarrassing shippers. Much of the trade in the Dakotas, which formerly used to be placed with Chicago operators, has been deflected to Milwaukee, Duluth and Superior. This, of course, affects the market here to a very material extent. Coal is still offering on dock here at $4.85. Wholesalers appear to be well fixed for the present. One result of the bountiful crops is that in many country districts there is a greater tonnage being bought than ever taken before, and many coal dealers are largely increasing their orders over those of a year ago. Coal is coming forward in a steady stream and stocks on dock show little, if any, diminution, notwithstanding the heavy withdrawals. Much of the business now is for quick shipments, and largely overtaxes the capacity of railroad facilities. As one prominent dealer remarked, "there is barely one car where five are needed." It is estimated that it will require the greater part of October to fill present obligations. Under such circumstances it would be unwise to sell coal for delivery at a time when prices will unquestionably rule higher than they are at present. Retail coal is now $5.75 strong.

In bituminous coal, trade is good, with a large increase in tonnage and comparatively firm prices, that are growing steadier each week. The outlook for a prosperous run of business from now on is very encouraging. Piedmont smithing coal is selling here at $3.65@$3.75.

Demand for coke is a little better, owing principally to the irregular car service. Crushed coke is steadily gaining ground as an article of fuel for domestic use, and the tonnage is steadily increasing.

Prices of anthracite per ton of 2,000 pounds f. o. b. Chicago are: Lehigh lump, $6.75; large egg, $5; small egg, range, and chestnut, $5. Retail prices per ton are: Large egg, $6; small egg, range, and chestnut, $6.

Prices of bituminous per ton of 2,000 pounds f. o. b. Chicago are: Pittsburg, $3.25; Hocking Valley, $3; Youghiogheny, $3.40; Indiana block, $2.40@$2.50; Illinois block, $1.90@$2.

Connellsville coke, 72-hour, per ton f. o. b Chicago, $5.05; crushed, $4.75; Walston, $5; New River, $5; West Virginia, $4.25@$4.50.

Pittsburg. Sept. 10.

(From our Special Correspondent.)

Coal.—The market continues to rule firm with a good local demand. The dealers that supply the Pittsburg trade have more orders booked than they can supply for some time to come. The advance in natural gas, to take effect October 1, has caused hundreds that have been using gas to lay in a winter supply of coal. Since last report there has been a rise in the Ohio; while not sufficient to

send out coal, it was enough to let boats with empties detained on the way reach port. This will give the miners employment for some days until the boats are loaded; otherwise all the mines would have been closed before this. The retail price of lump coal in this market is 8½ cents. Slack and nut coal can be obtained at lower figures.

Connellsville Coke.—A large increase in shipments is shown this week. The returns show the coke market to be in excellent shape. Shipments last week exceeded those of the previous week by several hundred cars, and many of the smaller operators are accusing some of the larger operators of cutting prices, but the big fellows deny it and say they are maintaining the regular rates. There are about 12,750 active ovens in the district. Shipments last week averaged 1,104 cars per day, as against 1,028 cars of the week before. The total increase was 456 cars. The following was the distribution: To points west of Pittsburg, 3,621 cars; to Pittsburg and river points, 2,050 cars; to points east of Pittsburg, 959 cars; total, 6,629 cars; previous week, 6,173. Prices are unchanged. Furnace coke, $1.90; foundry, $2.30; crushed, $2.65, all f. o. b. at works. Freights are the same as have ruled for some time past.

METAL MARKET.

NEW YORK, Friday Evening, Sept. 11.

Prices of Silver Per Ounce Troy.

Sept.	Sterling Exch'ge.	Lond'n Pence.	N. Y. Cts.	Sept.	Sterling Exch'ge.	Lond'n Pence.	N. Y. Cts.
6	....	Sunday		9	4.85	45 5/16	98⅛
7	4.85	45	97¾	10	4.84½	45⅛	98⅛
8	4.85	45⅛	97⅞	11	4.84½	45⅛	98¾

Owing to a continental demand silver has advanced about ⅝d.; shipments from this side, however, have been moderate.

The United States Assay office at New York reports the total receipts of silver for the week to be 85,000 ounces.

Government Silver Purchases.

The Treasury Department informs us that the amount of silver purchased during the past week was as follows:

	Offered, ozs.	Purchased, ozs.	Average price
Sept. 7	325,000	250,000	·9824
Sept. 9	926,000	650,000	·9853

WASHINGTON, D. C., Sept. 11. (By telegraph.)—The Treasury Department purchased 913,000 ounces of silver to-day at prices ranging from ·9869 to ·988 per ounce.

Silver Bullion Certificates

	Price. H.	Price. L.	Sales.
Sept. 5	..	..	.....
Sept. 7	..	..	.....
Sept. 8	98⅛	98⅛	260,000
Sept. 9	98⅜	98⅛	114,000
Sept. 10	98⅛	98⅜	73,000
Sept. 11	98⅞	98¾	45,000
Total sales			432,000

Domestic and Foreign Coin.

The following are the latest market quotations for American and other coin:

	Bid.	Asked.
Trade dollars	$ .76	$ .78
Mexican dollars	.77	.77½
Peruvian soles and Chilian pesos	.73	.74
English silver	4.84	4.88
Five francs	.93	.95
Victoria sovereigns	4.84	4.88
Twenty francs	3.86	3.90
Twenty marks	4.74	4.76
Spanish doubloons	15.55	15.70
Spanish 25 pesetas	4.78	4.83
Mexican doubloons	15.50	15.70
Mexican 20 pesos	19.50	19.60
Ten guilders	3.96	4.00

Foreign Bank Statements.

The governors of the Bank of England at their weekly meeting on Thursday made no change in its minimum rate of discount, which remains at 2½%. In the week the bank gained £228,000 bullion, and the proportion of reserve to liabilities was raised from 45·29% to 46·45%, against an increase from 44·90% to 45·48% in the corresponding week last year, when its discount rate was left unchanged at 4%. On the 10th inst., the bank lost £40,000 bullion on balance. The weekly statement of the Bank of France showed losses of 11,900,000 francs gold and 7,875,000 francs silver. That of the Imperial Bank of Germany showed a loss in specie of 5,420,000 marks.

Copper.—We have again to report a quite lively market for copper. The volume of business is steadily increasing, and we think this proves either that manufacturers have more orders than they had, or else that they are quite at low tide with their stocks. Shipments from the Lakes continue on a quite heavy scale, and as considerable copper is continually being exported the stocks have been very materially reduced. Prices are unaltered for Lake copper, which is not obtainable from first hands in the form of cakes, wire bars or ingots at buyer's option below 12¼c., but ingot copper in store at New York is still obtainable at a discount—say at about 12·35c. The scarcity of casting copper, which has now existed for some time, is somewhat more marked, and quite fair transactions have taken place at 11½@11¾c., particularly at the latter figure. Arizona pig copper is strongly held at 11¼c., and Arizona ingot copper at 12@12¼c.

The London market has shown pretty heavy fluctuations; Chili bars continue strong and have advanced to £53 5s. for spot, but afterward gave way, closing to-day at £52 12s. 6d. spot and £53 2s. 6d. 3 month. The consumptive demand for copper has been slight lately.

We quote: English tough, £54 10s.@£55; best selected, £55 10s.@£56; strong sheets, £64@£65; India sheets, £59@£59 10s.; yellow metal sheets, 5⅝d. @5¾d.

The exports of copper from the port of New York during the past week were as follows:

		Lbs.	
To Liverpool—	Copper Matte.		
S. S. Tauric	3,424 bags	380,000	$25,000
" Arizona	3,642 bags	401.828	27.800
" Britannic	3.137 bags	240,000	16,000
" Bothnia	1,484 bags	272,216	20,500
" "	75 casks		
To Liverpool—	Copper.	Lbs.	
S. S. Britannic	182 bars	25,016	3,252
To Havre—	Copper.	Lbs.	
S. S. La Normandie	105 casks	132,600	16,000
" "	536 pigs	156,647	19.000

Tin is evidently in a healthy position, and the heavy arrivals of late have done nothing more than replenish the rather small stocks of dealers and importers, without unduly depressing the market. The deliveries to consumers have been quite good. No pressure to sell has been noticed from any side, and we quote spot, 20·20c.; September, 20⅛c.; October, 20¼c.; and November. 20·30c.

The English market also has shown a great deal of firmness, though prices receded somewhat toward the end of the week. The highest price of the week was £92, and the lowest £91 5s. for spot, the closing figures being £91 5s.@£91 7s. 6d. for spot, and £91 12s. 6d.@£91 15s. three months.

Lead.—Lead continues firm, but after the heavy business reported last week is more quiet. At the same time prices are quite well maintained and the offerings from the West are light. We quote 4¼c.

In London, English lead is quoted at £12 5s., and Spanish at £12 10s.

The Lead Trust has notified the stockholders of the adoption of the proposed plan of reorganization, and requested them to sign the agreement or to send in their certificates for exchange. Good progress has been made, and on the 20th of this month the temporary receipts of the new company will be dealt in on the Stock Exchange. There will be a meeting of the directors the last week of this month, at which the matter of future dividends will be considered.

Chicago Lead Market.—Messrs. Everett & Post telegraph us as follows: "There has been a good inquiry for lead during the week, and the market has remained steady. Sales of some 1,500 tons have been made at 4·35c. The closing remains unchanged at 4·35c. asked."

Spelter.—Spelter continues dull and rather irregular. We hear that in St. Louis sales have been made at 4·65c., and even somewhat below this figure, which is equal to 4·90c., New York. We quote, nominally, 4·90@5c., New York.

In London, specials are quoted at £23 12s. 6d., and ordinaries at £23 17s. 6d.

Antimony.—Hallett's antimony has been decidedly more inquired for lately and importers are stiffer, holding Cookson's at 11½@11¾c., L. X. at 10¾c., and Hallett's at 10½@10¼c.

Quicksilver.—The price of quicksilver has steadily declined during the past few weeks, in sympathy with the London market. This week the quotations are: London, £7 5s.; New York, $42.50@$43.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Sept. 11.

The reports from manufacturers throughout the whole country would indicate that some improvement has taken place in the iron trade. In the New York market the reports are to the effect that the demand has increased only slightly—merely enough to make the prices we have quoted for some time past quite firm. Altogether, a more hopeful feeling prevails. In no instance do we hear of higher prices than last week's having been obtained for iron, but the opinion is prevalent that the market will continue to improve at a slow but steady rate.

American Pig Iron.—The main features of this market are altogether unchanged. Consumers persist in their policy of buying only sufficient iron to meet their current requirements, and really large orders have not been placed for some time. In the higher grades of foundry iron, notably in the Lehigh brands, the shortness of stocks last reported continues, and we know of some furnaces that are taxed to their utmost to supply customers. The lower grades are not in much request and sellers have been forced to lower their prices in order to dispose of their stocks. Our quotations this week are: Northern, No. 1x, $17@$18; No. 2x, $16@$16.50. Southern, No. 1x, $16.50@$17.50; No. 2x, $15.50@$16 50.

Scotch Pig Iron.—A little more business has been done during the week, but it has been of the usual spasmodic nature and does not show signs of permanency. Our quotations this week are: Eglinton, $20.50; Summerlee, $22.50; Coltness, $22.75@$23.

Spiegel-isen and Ferro-Manganese.—So far as actual business is concerned there is very little to report. It was rumored in certain circles that a sale of ferro-manganese had been made recently at less than the combination price. We have been unable to ascertain whether or not this report was true. Should it prove so it might result disastrously to the stability of the present "combine." The scheduled price is $64.50. Very little was done in spiegel, which is quoted nominally at $27.50@$28 for 20%.

Steel Rails.—There has been a slightly better inquiry, but no actual sales have been effected. The Association of Manufacturers met during the week, but so far as we have been able to learn nothing of importance was done. The price remains unchanged at $30 at mill and $30.75 at tidewater.

Rail Fastenings.—Some improvement is to be noted in the market for fastenings. There is a better inquiry, and some sales were made during the week, the principal one being a sale of fastenings for 1,000 tons of rails made to the Southern road which bought its rails from the Maryland Steel Company, as reported in this column two weeks ago. Quotations for fastenings are: Fish and angle plates, 1·75@1·80c.; spikes, 2·10@2·15c.; bolts and square nuts, 2·75@2·80c.; hexagonal nuts, 2·80@2·85c. For a large order, say for from 1,000 to 5,000 tons of rails, it is more than probable that these prices could be shaded. Complete joints, iron and steel, according to weight.

Tubes and Pipe.—No change has occurred in this market either as to volume of business or to prices. There is a fair trade doing, and ruling discounts on carload lots are as follows: 52½% on butt black; 42½% on galvanized; 62½% on lap, black; 50% on lap, galvanized; boiler tubes under 3 in. and over 6 in., 55%; 3 in. to 6 in., 60%.

Merchant Steel.—The market for merchant steel is dull and slow. Business has eased up considerably during the past week, and manufacturers report but little doing. We quote: R. Mushet's special, 48c.; English tool, 15c., new American tool steel, 7@8c.; special grades, 13@20c.; crucible machinery steel, 4·75c.; crucible spring, 3¾c.; open-hearth machinery, 2·50c.; open hearth spring, 2·50c.; tire steel, 2·50c.; toe calks, 2·50c.; first quality sheet, 10c.; second quality sheet, 8c.

Structural Iron and Steel.—Manufacturers are working on old contracts, and little new business is reported. We quote this week: Universal plates, $2.20; bridge plates, $2.10; beams, $3.10.

Old Material.—There is absolutely nothing new to report of this market. Very little, if any, business has been done. Quotations are nominally: old iron tee rails, $20.50@$21.50; double-heads, $21.50@$22.50; wrought iron scrap, $19@$21.

NOTES OF THE WEEK.

In the United States Circuit Court at Pittsburg, Pa., an important bill in equity was filed on the 4th inst., by Louis H. Bristol, of Connecticut, Eugene S. Bristol, of Illinois, Charles N. Yeamans, of Massachusetts, and other complainants, against William Scranton, Walter Scranton and the Scranton Steel Company. The complainants are all stockholders of the company, and in their bill of complaint set forth that the earnings of the corporation have not been divided among the stockholders, but were retained by the defendants, and also that the defendants entered into a scheme to sell a controlling interest in the Scranton Steel Company without making it known to the stockholders. The scheme failed, and the defendants, it is alleged, then attempted to consolidate with the Lackawanna Iron and Coal Company, a rival in the business, and such an arrangement was affected. It is said that the defendants carefully concealed from the complainants the fact that a secret contract had been made with the Lackawanna Iron and Coal Company for the payment to them of $350,000 in bonds of the new company. At a meeting of the stockholders held subsequently a resolution was brought up that the Messrs. Scranton be required to hand over the $350,000 in bonds received, but the resolution was lost, the Scrantons holding a controlling interest. The complainants come into court for relief, asking that a decree may be issued that the defendants pay over the $350,000 with interest.

Chicago. Sept. 10.

(From our Special Correspondent.)

The improvement in finished iron is more pronounced, both as regards value and demand, than it is for the crude article. In a general way prices of the latter are not as strong as they were a month ago, and particularly is this noticable in Southern coke and some brands of Northern charcoal; still, on the whole, there is hopefulness as to the future. A peculiar feature of the market is the strength of the manfactured product and the advance in prices, as contrasted with pig iron, which is more or less weak; this is rather reversing the order of things. Shippers and consumers of pig iron are complaining of short car supply, which is causing them no little inconvenience. Manufactured iron, bars, corrugated, black, and galvanized sheets, plates, etc., continue active, and values are still on the upward grade. Architectural, bridge, and other structural iron and steel are in good inquiry. Some of the larger implement makers are already asking soft-steel makers if, in the event of their needing further supplies, they can take care of them. Some Western plow manufacturers inform us they are cleaned out of stock. Steel-rail orders are for small quantities, with a continued good inquiry for medium-sized lots, say from 2,000 to 3,000 tons. Demand for old material and scrap is light.

Pig Iron.--Some fair-sized orders for coke iron are to be placed this week--several 1,000-ton lots--and the impression prevails that very low figures will be named on these contracts, which are for Southern product. Representatives of many of these furnaces are cutting prices. Indeed, the rapid increase in production in that quarter is a bar to steady prices, though stocks at furnaces are not considered too large, in view of the outlook from railroad circles. These furnaces anticipate that the consumption at the close of the year will be fully equal to the output. Blackband softeners are possibly a little firmer on account of the recent advance in freight rates. For local coke iron, orders are mostly for small lots, for car loads up to 300 tons, but there is no activity in any grade or brand of iron. Some of the smaller Lake charcoal furnaces are still selling at and around $17, but the stronger companies hold firm at $17.50@$18, and are talking business at those figures. The outlook for consumption during the remainder of the year is more encouraging. Demand for local make of spiegeleisen is light, and small lots command $28 for 20%, and $38 for 30%.

Quotations per gross ton f. o. b. Chicago are: Lake Superior charcoal, $17.25@$18; Lake Superior coke, No. 1, $15.25@$15.75; No. 2, $15@$15.25; No. 3, $14@$14.50; Lake Superior Bessemer, $17; Lake Superior Scotch, $17@$17.50; American Scotch, $17.75@$18.25; Southern coke, Foundry No. 1, $15.75; No. 2, $15.25; No. 3, $14.50; Southern coke, soft, No. 1, $15.50; No. 2, $14.50; Ohio silveries, No. 1, $18; No. 2, $17; Ohio strong softeners, No. 1, $18; No. 2, $17; Tennessee charcoal, No. 1, $18; No. 2, $17.50; Southern standard car wheel, $21@$21.50.

Structural Iron and Steel.—The outlook for fall work in the building trades is good. Much figuring is going on, and some important contracts may be placed this week. Angles are in short supply for quick delivery. Quotations for car lots f. o. b. Chicago are as follows: Angles, $2@$2.10; tees, $2.60@$2.70; universal plates, $2.3?@$2.45; sheared plates, $2.20@$2.30; beams and channels, $3.20.

Merchant Steel.—Manufacturers of miscellaneous steels have booked sufficient business to guarantee a large trade during the coming winter and spring. Best grades of tool steel are active. Tool steel, $6.75@$7 and upward; tire steel, $2.30@$2.50; toe calk, $2.50@$2.65; Bessemer machinery, $2.20@$2.30; Bessemer bars, $2@$2.10; open-hearth machinery, $2.60@$2.75; open-hearth spring, $2.75@$3; crucible spring, $3.75@$4.

Plates.—Business continues good. A contract for 1,250 tons ship plates and angles will be awarded this week. Steel sheets, 10 to 14, $2.70@$2.80; iron sheets, 10 to 14, $2.60@$2.70; tank iron or steel, $2.50@$2.70; shell iron or steel, $3@$3.25; firebox steel, $4.25@$5.50; flange steel, $3.25@$3.40; boiler rivets, $4.25; boiler tubes, 2¾ in. and smaller, 55%; 3 to 6 in., 60%; 7 in. and upward, 55%.

Steel Rails.—While we hear of no large contracts, orders for small quantities up to several thousand tons are frequent, wth every indication that this class of business will increase during the next few months. Prices are unchanged at $31.50@$32.50. Mill orders for angles and splice bars are placed in about the same proportion as those for heavy sections of rails. Spikes are much firmer. Regular quotations are: $1.95@$2 for steel and $1.85@$1.90 for iron; spikes at $2.20@$2.25 per 100 lbs.; track bolts, hexagonal nuts, $2.85@$2.90.

Galvanized Sheet Iron.—All the leading sizes are scarce in agents' warehouses, and demand continues briskly active. Some makers have advanced discounts 5%. We quote 67½% off on Juniata and 67½% and 5% off on charcoal.

Black Sheet Iron.—Demand is fair and mills very firm, with few able to make deliveries earlier than November. Quotations are 2·80@2·85c. mill for No. 27 common. Dealers quote 3·10@3·20c. for same gauge from stock.

Bar Iron.—There is an increased demand from railroads and jobbers, and general inquiry is fair to good. A small order for several car loads was secured by a nearby mill at 1·77½c. flat, equal to 1·72½c. Chicago. Local mills quote 1·70@1·75c., and agents of Valley manufacturers are very firm at 1·57½@1·60c. mill, half extras. Dealers quote 1·85@1·95c. rates.

Nails.—Manufacturers of steel-cut nails in the Wheeling district are more firm at $1.65@$1.70, but agents report orders light. Jobbers quote $1.75@$1.80 from store. Inquiry for wire nails is quiet, but with most mills prices continue very firm at $1.85@$1.90 factory. Dealers' price is $2.15 from store.

Scrap.—Scrap is still very dull, but probably a trifle less so than a week ago, and prices are more or less nominal for all grades. Dealers quote: No. 1 railroad, $19.00; No. 1 forge $18.50; No. 1 mill, $14.50; fishplates, $21; axles, $23; horseshoes, $18.50; pipes and flues, $13; cast borings, $8; wrought turnings, $10.50; axle turnings, $13; machinery casting, $12; stove plates, $9; mixed steel, $11; coil steel, $14.50; leaf steel, $15.50; tires, $16.50.

Old Rails and Wheels.—Demand for old iron rails is very light, but holders still ask $23, bids of $22.50 being refused. Old steel rails are very quiet at $14@$16.25. Car wheels are selling in a small way, 50 to 100-ton lots at $16@$16.25.

Louisville. Sept. 5.

(Special Report by HALL BROTHERS & CO.)

The market is showing some improvement by a little more inquiry, though prices remain about the same. There have been several large lots of charcoal iron sold and some fair-sized orders for coke iron have been placed. As a whole the iron situation in all its branches looks bright. We quote as last week:

Hot Blast Foundry Irons.—Southern coke, No. 1, $14.25@$14.50; No. 2, $13.50@$14; No. 3, $13@$13.25. Southern charcoal, No. 1, $16@$17; No. 2, $15.50@$16. Missouri charcoal, No. 1, $17@$17.50; No. 2, $16.50@$17.

Forge Irons.—Neutral coke, $12.50@$12.75; cold short, $12.25@$12.50; mottled, $11.75@$12.

Car Wheel and Malleable Irons.—Southern, standard brands, $19@$19.50; Southern, other brands, $17@$18. Lake Superior, $20@$21.

Philadelphia. Sept. 10.

Pig Iron.—There are symptoms of a general improvement, which ironmakers hope will not prove delusive. At present writing, demand is steady only, but there are more inquiries and other evidences of an improving demand which may set in almost any time; to what extent this demand may go, is a matter of speculation. There is enough iron within reach, however, to supply any reasonable request. Makers are, of course, anxious to push prices up a little, but they know this would prove a dangerous experiment. Sellers are more anxious for spot cash than for high prices on time. A very good No. 1 Foundry sold at $17.75 to-day, and a medium at $17.25, though the brands most in request are quoted and generally sold at a little higher. No. 2 has sold down to $16 and up to $16.75. The mill men have not yet started to buy heavily, though in the agregate a good week's business has been done on the basis of $14.25@$14.75. Hot-blast charcoal is quoted at $21.50 to-day, though prices vary according to quality.

Muck Bars.—Makers say they are on the eve of closing large transactions, but the difficulty just now is on price, which buyers think ought to be $26.50 or less, while makers hold good bars at $27.00.

Steel Billets.—Slabs sold this week at $26.75 delivered, at points not far from mills. Billets are unusually dull, but it is intimated that two or three large buyers are willing to close, if they can name prices.

Merchant Iron.—The merchant iron demand is altogether for small lots at 1·65@1·80c. There is an improvement in bars, which, if it continues, will possibly help to stiffen prices.

Skelp Iron.—After a long period of dullness, skelp iron has suddenly become active at 1·70@5·75c.

Sheet Iron.—The fall demand was all that was anticipated. More iron could be made than is selling, but the mill men are very well satisfied, both with demand and with the selling prices, which are not far removed from card rates.

Plate and Tank Iron.—The demand for both iron and steel plate has been satisfactory all the year, and September finds the mills not at all in urgent need of orders. The drawback has been and is that business is done on very narrow margins, indeed.

Structural Iron.—Bridge builders have recently enlarged their labor force to rush through construction of several important bridge jobs in the West. The orders at the mills for the last few months have been rather trifling compared with what was done before.

Steel Rails.—Quotations are $30 at mill, but there is nothing of importance to chronicle in the way of business.

Old Rails.--Old iron rails are quoted at $22, though business has been done at 50 cents less. Steel are quoted at about $18.

Scrap.—No. 1 is delivered at interior mills this week at $21.

Pittsburg. Sept. 10.

(From our Special Correspondent.)

The market, since our last report, shows evidence of a better feeling, together with an improved demand in most branches of the iron trade. Finished products are in good demand, and the advance previously noted has been maintained. In conversation with the writer, a valley furnaceman remarked: "Trade continues active. Most of the furnaces will be employed for some time on orders previously 'booked.' While prices are not what we would like to see, still we do not hear much complaint. Bessemer iron has been sold ahead for some time to come."

The stock of iron in the hands of consumers is not large. Many of them purchase limited amounts sufficient to run them for a short time, in expectation that prices will be lower by the time the stock on hand has been consumed. The transactions reported below show there is more business doing, but for the present we have but little improvement in prices to record. Meanwhile, the outlook is in every respect favorable, and it would seem that the lowest prices have been reached, and that we shall soon see a general advance on most descriptions of raw iron. Holders are beginning to be more conservative, and with many it is beginning to be not altogether a question of getting out, but rather to make something on the turn over. At prices recently accepted, however, it is declared by some makers who are well versed in such matters, that first cost in some instances has not been realized, and that even medium quotations do little more than let makers out whole.

The situation may be summed up as follows: Bessemer shows liberal transactions with no material change in values; future delivery sold at low figures. Grey forge: Demand fair, sales moderate; prices for favorite brands are well maintained; for late deliveries an advance is wanted; prices in the Mahoning and Shenango valley are fully as high as in Pittsburg. Steel slabs and billets are in good demand; sales show up well, several sales being for future delivery. City furnaces are doing most of the business. Muck bar is in moderate demand at rates current at date of last report. Ferromanganese is weaker, with sales at a slight decline. Steel wire rods: Prices are on the down grade; sales have been made at 35c. below last week's prices. Skelp iron: Demand and sales liberal; sheared advanced 5 cents; wide grooved and narrow grooved declined 2½ cents. No. 1 railroad scrap is firm; the advance previously noted has been maintained; other kinds of scrap material are dull and neglected. Old iron rails are scarce, and firmly held. Old steel rails, long lengths, find ready sales at current rates.

Coke Smelted Lake and Native Ores.

3,000 Tons	Bessemer at city furnace	$15.50 cash.
3,000 Tons	Bessemer, spot	15.60 cash.
1,500 Tons	Bessemer,	15.75 cash
1,500 Tons	Bessemer	15.70 cash.
1,000 Tons	Mill Iron	14.00 cash.
1,000 Tons	Grey Forge	13.75 c sh.
1,000 Tons	Bessemer, October and November	15.65 cash.
1,000 Tons	Bessemer	15.65 cash.
1,000 Tons	Grey Forge, Sept. and Oct	14.00 cash.
750 Tons	Bessemer	15.75 cash.
750 Tons	Grey Forge, September	13.90 cash.
500 Tons	Off Bessemer	15 00 cash.
500 Tons	Mill Iron	14.00 cash.
500 Tons	Grey Forge, September	14.00 cash.
500 Tons	Grey Forge, Sept. and Oct	14.10 cash.
500 Tons	Grey Forge, all ore	15 25 cash.
300 Tons	No. 1 Foundry, all ore	17.25 cash.
200 Tons	No. 2 Foundry, all ore	16.25 cash.
100 Tons	No. 3 Foundry	14.65 cash.
100 Tons	White Iron	13.65 cash.
100 Tons	No. 1 Foundry	16.00 cash.
100 Tons	Grey Forge	13.90 cash.

Steel Slabs and Billets.

2,500 Tons	Billets, September to January	25.75 cash.
2,500 Tons	Billets, at city mill	25.25 cash.
1,400 Tons	Billets, September and October	25 5? cash.
1,200 Tons	Nail Slabs	25.00 cash.
1,000 Tons	Nail Slabs	25.00 cash.
700 Tons	Slabs and Blooms, Sept., Oct	25.60 cash.
500 Tons	Billets	25.25 cash.
250 Tons	Slabs, September	25.40 cash.

Muck Bars.

1,200 Tons	Neutral, Oct. and Nov	26.65 cash.
1,000 Tons	Neutral, Sept. and Oct	26.50 cash.
800 Tons	Neutral, October	26 75 cash.
700 Tons	Neutral	26.25 cash.
500 Tons	Neutral	26.50 cash.
400 Tons	Neutral	26.65 cash.

Ferro-Manganese.

130 Tons	80%, delivered	66.75 cash.
110 Tons	80%	66.50 cash.
45 Tons	80%	66.50 cash.

Bloom, Beam, Rail and C Ends.

1,200 Tons	September, October and November	16.75 cash.

Skelp Iron.

2,000 Tons	Narrow Grooved	1.67½ 4 m
1,800 Tons	Wide Grooved	1.72½ 4 m.
1,500 Tons	Wide Grooved	1.72½ 4 m.
1,500 Tons	Narrow Grooved	1.70 4 m.
1,200 Tons	Sheared Iron	195 cash.

Steel Wire Rods.

800 Tons	American fives, Sept., Oct	33 40 cash.

Scrap Material.

200 Tons	No. 1 R. R. Wrought Scrap, net	20.50 cash.
150 Tons	" " " " "	20 25 cash.
100 Tons	No. 2 Wrought Scrap, net	17.00 cash.

Old Iron and Steel Rails.

1,000 Tons	American Tees., Valley del	23.25 cash.
700 Tons	Old Steel Rails, long lengths	18.50 cash.

NEW YORK MINING STOCKS QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Sept. 5.		Sept. 7.		Sept. 8.		Sept. 9.		Sept. 10.		Sept. 11.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Adams, Colo.													
Alice, Mont.													
Aspen, Nev.													
Atlantic, Mich.													
Belcher, Nev.					1.80								200
Belle Isle, Nev.													
Bodie Cons., Cal.							.60						200
Bos. & Mont., Mont.													
Breece, Colo.													
Bulwer, Cal.													
Caledonia, S. Dak.					.65			.65					700
Catalpa													
Chrysolite, Colo.													
Colorado Central, Colo.													
Commonwealth, Nev.	.30												300
Comstock T. bonds, Nev.													
" scrip., Nev.													
Cons. Cal. & Va., Nev.					7.50								50
Crown Point, Nev.	1.75												100
Deadwood, Dak.							1.95		1.85	1.80			400
Eureka Cons., Nev.													
Father de Smet, S. Dak.													
Franklin, Mich.													
Freeland, Colo.													
Gould & Curry, Nev.	1.80												200
Granite Mountain, Mont.													
Hale & Norcross, Nev.													
Homestake, Dak.													
Horn-Silver, Utah													
Independence, Nev.													
Iron Silver													
Leadville Cons., Colo.					12			12					1,000
Little Chief, Colo.													
Martin White, Nev.													
Mono, Cal.													
Mt. Diablo, Nev.													
Navajo, Nev.					.20								100
N. Belle Isle, Nev.													
Ontario, Utah													
Ophir, Nev.	3.90				4.25								200
Osceola, Mich.													
Plymouth, Cal.													
Quicksilver, Pref., Cal.													
" Com., Cal.													
Quincy, Mich.													
Robinson Cons., Colo.	.35												300
Savage, Nev.													
Sierra Nevada, Nev.	2.20						3.20						200
Silver Cord, Colo.													
Silver King, Ariz.													
Silver Mg. of L. V., N. M.							.40						100
Small Hopes, Colo.													
Standard.					1.20	1.15	1.25						1,300
Yellow Jacket, Nev.	1.50												150

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	*Sept. 5.		Sept. 7.		Sept. 8.		Sept. 9.		Sept. 10.		Sept. 11.		SALES
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alpha, Nev.													
Alta.	.55												100
American Flag, Colo.													
Andes, Cal.													
Astoria, Cal.	.02				.02		.02				.02		6,500
Augusta, Ga.							.10						2 0
" bonds.													
Barcelona, Nev.													
Belmont, Cal.	.85				.85		.86	.85	.86	.85	.86		1,700
Best & Belcher, Nev.	3.65												100
Bonanza King, Cal.													
Brunswick, Cal.	.10				.11		.11	.10	.10		.10		2,700
Bullion, Nev.													
Butte & Bost., Mont.													
Castle Creek, Idaho					.04								500
Chollar	2.15												200
Comstock T., Nev.					.16		.18	.17	.19	.18	.18		6,300
Con. Imperial, Nev.													
Con. Pacific, Cal.													
Crescent, Colo.													
Del Monte, Nev.													
El Cristo, Rep. of Col.													
Emmett													
Exchequer, Nev.													
Hollywood, Cal.													
Huron, Mich.													
Justice, Nev.													
King. & Pembroke, Ont.													
Lacrosse, Colo.									.05				600
Lee Basin, Colo.													
Mexican, Nev.	2.10							2.50					300
Middle Bar, Cal.													
Monitor, Colo.													
Mutual S. & M. Co., Wash.													
Nevada Queen, Nev.											.25		100
N. Standard, Cal.													
N. Commonwealth, Nev.													
Occidental, Nev.													
Oriental & Mil., Nev.								.04					200
Phœnix Lead, Colo.								.12					300
Phœnix of Ariz.								.50					3,000
Potosi, Colo.									.51	.45	.50	.47	
Rappahannock, Va.													
S. Sebastian, S. Sal.													
Santa Fe, N. M.													
Scorpion, Nev.									.45				100
Seg Belcher, Nev.													
Shoshone, Idaho													
Silver Hill, Nev.													
Sullivan Con., Dak.													
Sutro Tunnel, Nev.													
Syndicate.													
Tornado Con., Nev.													
Union Cons., Nev.	2.35								2.60				200
Utah, Nev.	.70												500

*Ex. dividend. †Dealt at in the New York Stock Ex. Unlisted securities. ‡Assessment paid. §Assessment unpaid. Dividend shares sold, 5,500. Non-dividend shares sold 23,500. Total shares sold, 29,000.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	Sept. 4.		Sept. 5.		Sept. 7.		Sept. 8.		Sept. 9.		Sept. 10.		SALES.
Atlantic, Mich.	15.50		16.00				16.00						180
Bodie, Cal.													
Bonanza Development													
Bost. & Mont., Mont.	50.00	48.87	49.87	49.00			50.00	49.75	50.00	49.50	49.87	48.87	2,917
Breece, Colo.													
Calumet & Hecla, Mich.	270						273				273	272	41
Catalpa, Colo.													
Central, Mich.													
Cœur d'Alene, Id.													
Con. Cal. & Va., Nev.													
Dunkin, Colo.									.50				400
Eureka, Nev.													
Franklin, Mich.	17.50		17.75	17.50			17.25		18.00	17.50	17.50		475
Honorine, Utah													
Horn Silver, Utah													
Kearsarge, Mich.	16.00	15.00	15.75	15.00			16.00	17.75	16.87	16.00	17.00	16.00	2,561
Little Chief, Colo.													
Little Pittsburg, Colo.													
Minnesota Iron.													
Napa, Cal.									4.00				100
Ontario, Utah													
Osceola, Mich.	39.75	39.50	40.00				40.00		41.25	39.50	40.25	40.00	1,866
Quincy, Mich.	110	109⅛	110										141
Ridge, Mich.													
Sierra Nevada, Nev.													
Silver King, Ariz.													
Stormont, Utah													
Tamarack, Mich.	170						175				172½		110
Tecumseh, Mich.			3 25						3.63		3.63		375

NAME OF COMPANY.	Sept. 4.		Sept. 5.		Sept. 7.		Sept. 8.		Sept. 9.		Sept. 10.		SALES
Allouez, Mich.	2.63		2.50	2.25			2.37		2.13		2.25	2.00	835
Arnold, Mich.											1.75		100
Aztec, Mich.													
Brunswick, Cal.													
Butte & Boston, Mont.	19.50	18.25	19.75	19.00			19.75	19.50	20.00	19.50	20.00	19.18	4,835
Centennial, Mich.	19.63	19.00	19.75	19.00			19.75	19.25	20.75	19.75	20.50	20.00	3,085
Comstock T., Nev.													
Copper Falls, Mich.													
Crescent, Colo.													
Dana, Mich.													
Don Enrique, N. M.													
El Cristo, S. A.													
Hanover, Mich.													
Humboldt, Mich.	.45												100
Hungarian, Mich.													
Huron, Mich.											1.50		175
Mesnard, Mich.													
National, Mich.							3.50	3.37	3.37				300
Native, Mich.													
Oriental & M., Nev.													
Phoenix, Ariz.													
Pontiac, Mich.													
Rappahannock, Va.													
Santa Fe, N. Mex.	.60	.57½					.60		.60		60		1,400
Shoshone, Idaho.													
South Side, Mich.													
Star, Mich.													
Washington, Mich.													
Winthrop, Mich.													

Dividend shares sold, 9,166. Non-dividend shares sold, 10,830. Total shares sold, 19,996.

COAL STOCKS.

NAME OF COMPANY.	Sept. 5.		Sept. 7.		Sept. 8.		Sept. 9.		Sept. 10.		Sept. 11.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
American Coal.													
Cambria Iron.													
Cameron Coal & I. Co.	2½						2½						200
Ches. & O. R. R.													
Chic. & Ind. Coal R. R.													
Do. pref.													
Col. C. & I.	36¼	36			36½	35¾	36½	35½	35⅝	35⅛	36⅛	35⅝	3,600
Col. C. & Hocking C. I.											16½		100
Consolidation Coal.													
Del. & H. C.	141⅛	139			141⅜	140¾	140⅜	138½	139¼	138¼	138⅜		9,179
D., L. & W. R. R.	144	143			144¼	143¾	144	143	144⅛	142⅜	144	143¾	35,153
Hocking Valley	28	27½			29⅝	28⅜	29⅝	28¼	29¼	28½	29⅛	28⅝	8,585
Hunt & Broad Top.													
Do. pref.					47				47				150
Illinois C. & Coke Co.													
Lehigh C. & N.	45				49	46¾	49		49⅛	49			427
Lehigh Valley R. R.	50⅛	50			50⅛	50	49⅛	49⅜	49⅜	49⅜			958
Lehigh & Wilk. Coal.													
Mahoning Coal.													
Do. pref.													
Maryland Coal.									21				50
Morris & Essex.									141½				154
New Central Coal.							11						100
N. J. C. R. R.	120¾	120			121	120¼	120⅛	120	120⅛	118¾	119⅛	118⅝	4,743
N. Y. & S. Coal.													
N. Y., Susq. & West.	9	8¾			9	8¾					8⅞	8¾	800
Do. pref.	33¼	33			33¼	32¾	33⅜	33	33⅛				1,630
N. Y. & Perry C. & I.													
Norfolk & West. R. R.							17						100
Do. pref.					54½		55	54⅛	55⅛				320
Penn. Coal.													
Penn. R. R.	54	53⅞			54	53⅞	54⅛	54	54⅜	54			12,795
Ph. & R. R. R.	37	36½			36⅞	35⅝	37⅛	35¾	37	36⅛	36⅞	36	127,499
Sunday Creek Coal.													
Do. Pref.													
Tennessee C. & I. Co.	33¾	33½			34	33½	34⅛	33¾	34⅛	33½	34¼	33⅝	6,700
Do. pref.											89¾		100
Westmoreland Coal.													

* Ex-dividend. Total shares sold, 213,537.

Deadwood.

SEPT. 5.

The following are the closing quotations:

	Bid.	Ask'd.
Anna		
Bullion	.02	.03
Carthage		
Cora	.05	.07½
Double Standard	.09	.11
Emmett	.01½	.03
Equitable	.00¾	.01
Florence	.01¾	.03
Golden Reward	.33	.33½
Harmony	.06	.08
Hermit	.01½	.02
Hesta A		
Iron Hill	.18	.20
Isidora		.20
New Era		
Maggie		
Mikado		
Mutual		
Parson	.01	.01½
Rainbow	.02	.03
Retriever	.14	.15½
Ross Hannibal		
Ruby Bell	.10	.12
Ruby Wilkes		
Seab'ry-Calkins	.02½	.03
Steward	.09	.10
Tornado	.13	15
Troy	.01	.02
Uncle Sam	.05	.06

Aspen.

Highest and lowest prices for the week ending Sept. 5:

Argentum Juniata	$1.50	$1.50
Aspen Deep Shaft	.08	.10
Aspen Favorite		.10
Best Friend	.24	.25
Bushwacker	.31	.39
Della S.		
Little Annie	.23	.23
Mollie Gibson	4.12½	4.15
Nolan Creek		.12
Park, Mamie & Queen.		
Pontiac.		.12
St. Joe & Mineral F'rm	.24	.25

San Francisco Mining Stock Quotations.

NAMES OF STOCKS.	CLOSING QUOTATIONS. Sept. 4.	Sept. 5.	Sept. 7.	Sept. 8.	Sept. 9.	Sept. 10.
Alpha						
Alta	.50	.50	.45	.45		.45
Belcher						
Belle Isle			.40	.40		
Best & Bel.	3.50	3.45	3.80	3.45		3.50
Bodie	.50	.50	.50	.60		.55
Bulwer	.20	.20	.20	.20		.20
Chollar	1.95	2.00	1.90	1.80		1.75
Com'wealth	.25	.25	.25	.20		.25
Con. C. & V.	6.62½	7.00	7.25	6.87½		6.50
Con Pacific						
Crown Point.	1.60	1.65	1.80	1.65		1.60
Del M'te, Nev.						
Eureka C						
Gould & C.	1.70	1.90	2.05	1.90		1.90
Hale & N.	1.75	1.75	1.95	1.80		1.80
M. White						
Mexican	2.20	2.25	2.40	2.25		2.40
Mono		.25	.35	.30		.35
Mt. Diablo						
Navajo	.15					
Nev. Queen			.10	.15		.10
N. Belle Isle			.20	.25		
N. Com'w'lth						
Ophir	3.75	3.80	4.25	3.90		3.90
Potosi	3.00	3.00	3.05	2.95		2.95
Savage	3.05	3.25	3.35	3.10		3.10
Sierra Nev.	3.00	3.25	3.40	3.20		3.20
Union Con.	2.20	2.35	2.50	2.35		2.35
Utah	.60	.70	.70	.70		.70
Yellow Jack.	1.30	1.40	1.45	1.30		1.30

DIVIDEND-PAYING MINES.

	Name and Location of Company.	Capital Stock.	Shares. No.	Shares. Par	Assessments. Total levied.	Assessments. Date and Amount of last	Dividends. Total paid.	Dividends. Date & amount of last.
1	Adams, s. L. C.	Colo.	$1,500,000	150,000	$10	*	.....	$600,000 Aug. 1891 .05
2	Alice, s.	Mont.	10,000,000	400,000	25	*	.....	945,000 Aug. 1891 .06¼
3	Alma & Nel Wood., G	Idaho	300,000	30,000	10	*	.....	60,000 Jan. 1889 .50
4	Amador, G.	Cal.	1,250,000	250,000	5	*	.....	31,250 Aug. 1890 .12½
5	American Belle, s. G. C	Colo.	2,000,000	400,000	5	*	.....	50,000 April 1891 .12½
6	Americ'n & Nettie, G. &	Colo.	.....	300,000	..	.....	.....	150,000 Nov. 1889 .10
7	Amy & Silversmith, s.	Mont.	.....	341,419	..	.....	.....	247,530 Aug. 1887 .12½
8	Atlantic, C.	Mich.	1,000,000	40,000	25	$280,000 April 1875	$1.00	700,000 Feb. 1891 1.00
9	Argenta, s.	Nev.	10,000,000	100,000	100	335,000 July. 1889	.10	40,000 Feb. 1890 .20
10	Aspen Mg. & S., s. L.	Colo.	2,000,000	200,000	10	*	.....	660,000 May. 1891 .10
11	Aurora, I.	Mich.	2,500,000	100,000	25	*	.....	555,000 April 1891 1.00
12	Badger, s.	Colo.	250,000	50,000	5	*	.....	37,500 Mar. 1890 .25
13	Bangkok Cora-Bell, s.	Colo.	600,000	600,000	1	*	.....	44,510 Aug. 1890 .00½
14	Belle Isle, s.	Nev.	10,000,000	100,000	100	190,000 Dec. 1889	.15	300,000 Dec. 1879 .25
15	Belcher, s. G.	Nev.	10,400,000	104,000	100	2,978,000 Feb. 1891	.50	15,397,000 April 1876 1.00
16	Bellevue, Idaho, s. L.	Idaho	1,250,000	125,000	10	120,000 Dec. 1889	.25	200,000 Jan. 1890 .10
17	Bi-Metallic, s. G.	Mont.	5,000,000	200,000	25	.....	.....	760,000 June 1891 .35
18	Bodie Con., G. L.	Cal.	10,000,000	100,000	100	550,000 June 1890	.25	1,602,572 April 1891 .50
19	Boston & Mont., G.	Mont.	2,500,000	250,000	10	*	.....	520,000 June 1886 .15
20	Boston & Mont., C. &	Mont.	2,500,000	100,000	25	*	.....	1,950,000 Aug. 1891 1.00
21	Breece, I.	Colo.	5,000,000	200,000	25	*	.....	2,300 Feb. 1889 .01
22	Brooklyn Lead, L. &	Utah	500,000	50,000	10	.....	.....	127,000 July. 1887 .05
23	Bulwer, G.	Cal.	10,000,000	100,000	10	130,000 Aug. 1889	.25	175,000 Jan. 1884 .10
24	Bunker Hill & S. & L.	Idaho	3,000,000	300,000	10	*	.....	150,000 Oct. 1883 .00⅔
25	Caledonia, G.	Dak.	10,000,000	100,000	100	505,000 May. 1885	.15	192,000 Oct. 1890 .08
26	Calliope, S.	Colo.	1,000,000	1,000,000	..	.....	.....	140,000 Jan. 1891 .00½
27	Calumet & Hecla C.	Mich.	2,500,000	10,000	25	1,200,000	.....	36,350,000 Sept. 1891 5 00
28	Catalpa, s. L. I.	Colo.	3,000,000	300,000	10	*	.....	270,000 May. 1884 .10
29	Centen'l-Eureka, s. L.	Utah	1,500,000	30,000	50	.....	.....	352,500 July. 1891 2.00
30	Central, C.	Mich.	500,000	20,000	25	100,000 Oct. 1865	.62	1,970,000 Feb. 1891 1.00
31	Chrysolite, s. L.	Colo.	10,000,000	200,000	50	*	.....	1,650,000 Dec. 1884 .25
32	Clay County, G.	Colo.	200,000	200,000	1	*	.....	40,000 July. 1889 .02
33	Cœur D'Alene, s. L.	Idaho	5,000,000	500,000	10	.....	.....	290,000 Oct. 1891 .02
34	Colorado Central, s. L.	Colo.	2,750,000	275,000	10	*	.....	406,250 Aug. 1889 .05
35	Commonwealth, s.	Nev.	10,000,000	100,000	100	170,000 Nov. 1888	.50	20,000 Nov. 1890 .20
36	Confidence, s. L.	Nev.	.....	24,960	..	228,288 May. 1889	.75	199,680 April 1889 1.00
37	Cons. Cal. & Va., s. G.	Nev.	21,600,000	216,000	100	108,000 Jan. 1885	.25	3,682,800 Aug. 1891 .50
38	Contention, s.	Ariz.	12,500,000	250,000	50	.....	.....	‡2,587,500 Dec. 1884 .25
39	**Cop. Queen Con., C	Ariz	1,400,000	140,000	10	.....	.....	210,000 Feb. 1889 .50
40	Cortez, s.	Nev.	1,500,000	300,000	5	*	.....	481,000 Feb. 1891 .46
41	Crescent, s. L. G.	Utah	15,000,000	600,000	25	*	.....	228,000 Oct. 1888 .03
42	Crown Point, G. s.	Nev.	10,000,000	100,000	100	2,425,000 Sept. 1889	.50	11,580,000 Jan. 1875 2.00
43	Cumberland, L. S.	Dak.	5,000,000	500,000	10	*	.....	15,000 Nov. 1889 .03
44	Daly, s. L.	Utah	3,000,000	150,000	20	*	.....	2,062,500 Aug. 1891 .25
45	Deer Creek, s. G.	Utah	1,000,000	200,000	..	*	.....	20,000 June 1889 .05
46	Deadwood-Terra, G.	Dak.	5,000,000	200,000	25	*	.....	1,020,000 Sept. 1891 .05
47	DeLamar, s. G.	Idaho	2,000,000	400,000	5	.....	.....	72,000 July 1891 .13
48	Derbec B. Grav., G.	Cal.	10,000,000	100,000	100	90,000 Dec. 1881	.10	240,000 Oct. 1891 .10
49	Dunkin, s. L.	Colo.	3,000,000	300,000	10	*	.....	300,000 Oct. 1889 .05
50	Dunstone, s. L.	Mont	1,000,000	500,000	2	*	.....	6,000 Nov. 1888 .03
51	Eclipse, L. S.	Colo.	100,000	100,000	..	*	.....	20,000 Nov. 1884 .10
52	Elkhorn, s. L.	Mont	1,000,000	200,000	..	*	.....	¶396,000 Ju. e 1891 1.00
53	Enterprise, s.	Colo.	100,000	10,000	10	*	.....	40,000 May. 1888 1.00
54	Eureka Con., s. L. G.	Nev.	5,000,000	50,000	100	350,000 June 1889	.50	4,892,500 Oct. 1891 .25
55	Evening Star, s. L.	Dak.	500,000	50,000	10	*	.....	1,450,000 Dec. 1889 .25
56	Father de Smet, G.	Dak.	10,000,000	100,000	100	200,000 Nov. 1878	1.00	1,125,000 Dec. 1885 .20
57	Franklin, C.	Mich.	1,000,000	40,000	25	220,000 June 1875	....	1,040,000 July 1891 2.00
58	Freeland, s. G.	Colo.	5,000,000	200,000	25	*	.....	180,000 July 1886 .10
59	Garfield Lt., G. s.	Nev.	500,000	100,000	..	.....	.....	90,000 April 1888 .12½
60	Gould & Curry, s. G.	Nev.	10,800,000	108,000	100	3,388,800 Sept. 1890	.25	3,826,800 Oct. 1870 10.00
61	Grand Prize, s.	Nev.	10,000,000	100,000	100	785,000 Jan. 1890	.30	495,000 Mar. 1894 .25
62	Granite, s. L.	Idaho	500,000	50,000	10	*	.....	28,400 Oct. 1889 .02
63	Granite Mountain, s.	Mont	10,000,000	400,000	25	*	.....	11,300,000 Sept. 1891 .25
64	Green Mountain, G.	Cal.	1,250,000	125,000	10	*	.....	212,000 Nov. 1881 .07½
65	Hale & Norcross, G. s.	Nev.	11,200,000	112,000	100	5,142,800 April 1890	.50	1,822,000 Aug. 1888 .50
66	Hecla Con., s. G. L. C.	Mont	1,500,000	30,000	50	*	.....	1,680,000 Aug. 1891 .50
67	Hel'a Mg. & Red, s. L. G.	Mont	3,315,000	663,000	5	*	.....	199,500 July 1886 .06
68	Holmes, S.	Nev.	10,000,000	100,000	100	370,000 May 1890	.25	75,000 April 1886 .25
69	Homestake, G.	Dak.	12,000,000	125,000	100	200,000 July. 1877	1.00	4,731,750 Aug. 1891 .10
70	Honorine, s. L.	Utah	500,000	250,000	..	37,500 April 1882	.05	125,000 Sept. 1886 .05
71	Hope, s.	Mont.	1,000,000	100,000	10	*	.....	233,252 April 1888 .25
72	Horn-Silver, s. L.	Utah	10,000,000	400,000	25	*	.....	4,300,000 June. 1891 .13½
73	Hubert, G.	Colo.	1,000,000	1,000,000	..	*	.....	247,000 Dec. 1889 .00½
74	Idaho, G.	Utah	310,000	3,100	100	.....	.....	2,303,75. July 1891 3.00
75	Illinois, s.	N. M.	100,000	100,000	1	*	.....	45,000 April 1889 .20
76	Iron Hill, s.	Dak.	2,500,000	250,000	10	134,000 July 1888	.0.	156,250 Nov. 1887 .07½
77	Iron Mountain, S.	Mont.	500,000	500,000	1	*	.....	120,000 Feb. 1891 .05
78	Iron-Silver, s. L.	Colo.	10,000,000	500,000	20	*	.....	2,500,000 April 1889 .20
79	Jackson, G. s.	Nev.	5,000,000	50,000	100	237,500 Nov. 1888	.20	60,000 Jan. 1891 .10
80	Jay Gould, G. s.	Nev.	2,000,000	40,000	50	*	.....	459,000 May 1889 .04
81	Kearsarge, C.	Mich.	1,000,000	40,000	25	190,000 Oct. 1887	1.00	80,000 Jan. 1889 2.00
82	Kentuck, s. G.	Nev.	3,000,000	30,000	100	417,43. Dec. 1890	.35	1,350,000 Dec. 1886 .10
83	La Plata, s. L.	Colo.	2,000,000	200,000	10	*	.....	610,000 Sept. 1892 .30
84	Leadville Con., s. L.	Colo.	4,000,000	400,000	10	*	.....	423,000 April 1887 .05
85	Lexington, G. s.	Mont.	4,000,000	40,000	100	*	.....	565,000 Jan. 1885 2.00
86	Little Chief, s. L.	Colo.	10,000,000	200,000	50	*	.....	200,000 Dec. 1890 .05
87	Little Rule, s.	Colo.	500,000	500,000	1	.....	.....	170,000 July 1891 .02
88	Mammoth, s. L. C.	Utah	10,000,000	400,000	25	110,000	.25	960,000 June 1891 .10
89	Martin White, s.	Nev.	10,000,000	100,000	100	1,225,000 Oct. 1889	.25	140,000 Dec. 1886 .25
90	Mary Murphy, s. G.	Colo.	250,000	3,500	101	*	.....	175,000 May. 1888 5.00
91	Matchless, s. L.	Colo.	500,000	500,000	1	*	.....	15,000 Feb. 1890 .00½
92	May Mazeppa, s. L.	Colo.	1,000,000	100,000	10	*	.....	168,000 July. 1891 .01¼
93	Minas Prietas, G. s.	Mex.	1,000,000	100,000	10	*	.....	350,000 Dec. 1890 .50
94	Minnesota, C.	Mich.	1,000,000	40,000	25	420,000 April 1889	1.00	1,820,000 Mar. 1876 ....
95	Mollie Gibson, s.	Colo.	5,000,000	1,000,000	.5	*	.....	550,000 Sept. 1891 .05
96	Monitor, G.	S. Dak	2,500,000	250,000	10	*	.....	45,000 Oct. 1888 .03
97	Mono, G.	Cal.	5,000,000	50,000	100	760,000 Sept. 1889	.25	12,500 Mar. 1884 .25
98	Montana, G. s.	Mont.	2,300,000	460,000	5	*	.....	2,613,075 June 1891 .12½
99	Morning Star, s. L.	Colo.	1,000,000	100,000	10	*	.....	925,000 April 1891 .25
100	Moulton, s. G.	Mont	2,000,000	400,000	5	*	.....	380,000 Dec. 1887 .07½
101	Mount Pleasant, G.	Cal.	150,000	150,000	1	*	.....	150,000 Feb. 1887 .30
102	Mt. Diablo, s.	Nev.	5,000,000	50,000	100	137,500 June 1888	2.00	180,000 Sept. 1890 .40
103	Napa, Q.	Cal.	700,000	100,000	7	*	.....	420,000 July 1891 .10
104	Navajo, G. s.	Nev.	10,000,000	100,000	100	500,000 April 1890	.15	229,950 April 1889 .10
105	New California, G.	Colo.	800,000	160,000	5	*	.....	48,800 May. 1890 .12½
106	New Guston, s.	Colo.	550,000	110,000	5	*	.....	785,000 April 1891 1.00
107	N. Hoover Hill, G. s.	N. C.	300,000	120,000	2½	*	.....	30,000 Dec. 1885 .06½
108	Northern Belle, s.	Nev.	5,000,000	50,000	100	425,000 Jan. 1884	8.00	2,400,000 April 1883 .50
109	North Belle Isle, s.	Nev.	10,000,000	100,000	100	395,000 April 1890	.20	230,000 May. 1888 .50
110	North Star, G.	Cal.	1,000,000	100,000	10	*	.....	30,000 April 1889 .50
111	Ontario, S. L.	Utah	15,000,000	150,000	100	.....	.....	12,125,000 Aug. 1891 .50
112	Ophir, G. s.	Nev.	10,000,000	100,000	100	4,210,640 April 1890	.50	1,595,800 Jan. 1890 1.00
113	Original, s. C.	Mont.	1,500,000	60,000	25	*	.....	138,000 Jan. 1889 .05
114	Oro, s. L. G.	Colo.	500,000	100,000	5	.....	.....	95,000 July. 1890 .20
115	Osceola, C.	Mich.	1,250,000	50,000	25	480,000 April 1876	1.6	1,547,50. July. 1891 1.00
116	Parrot, C.	Mont.	1,800,000	180,000	10	*	.....	850,000 May. 1891 .10
117	Perrack, s. M.	N. M.	2,000,000	200,000	10	*	.....	60,000 Nov. 1886 .01
118	Plumas Eureka, G.	Cal.	1,406,25.	140,625	10	*	.....	2,548,000 Oct. 1889 .37½
119	Plymouth Con., G.	Cal.	5,000,000	100,000	50	*	.....	2,280,000 Feb. 1888 .40
120	Quicksilver, pref., Q.	Cal.	4,800,000	48,000	100	.....	.....	1,770,161 Jan. 1891 1.50
121	" com., Q.	Cal.	5,700,000	57,000	100	.....	.....	643,867 July. 1882 .40
122	Quincy, C.	Mich.	1,000,000	40,000	25	240,000 Dec. 1886	....	5,370,000 Aug. 1891 5.00
123	Reed National, s. G.	Colo.	5,000,000	100,000	1	.....	.....	50,000 Dec. 1890 .01
124	Rialto, G.	Colo.	300,000	300,000	1	*	.....	13,500 July. 1891 .01¼
125	Richmond, s. L.	Nev.	1,350,000	54,000	25	*	.....	4,332,887 Jan. 1891 .62½
126	Ridge, C.	Mich.	500,000	20,000	25	219,53. Mar. 1886	.5.	99,785 Feb. 1888 .50
127	Robinson Con., s. L.	Colo.	10,000,000	200,000	50	*	.....	585,000 Mar. 1886 .05
128	Running Lode, G.	Colo.	1,000,000	1,000,000	1	*	.....	15,000 June 1891 .00½
129	Savage, s.	Nev.	11,200,000	112,000	100	6,604,00. Nov. 1888	.5.	4,480,000 June 1891 3.00
130	Sheridan, s. G.	Colo.	300,000	3,000	100	*	.....	225,000 Dec. 1890 3.33⅓
131	Shoshone, G.	Idaho	150,000	150,000	1	.....	.....	7,500 April 1888 .01
132	Sierra Buttes, G.	Cal.	2,225,000	122,500	10	*	.....	1,492,557 April 1888 .12½
133	Sierra Nevada, s. G.	Nev.	10,000,000	100,000	100	6,286,916 May 1890	.50	102,000 Jan. 1871 1.00
134	Sierra Nevada, s. L.	Idaho	1,000,000	1,000,000	1	*	.....	40,000 May. 1889 .02
135	Silent Friend, G.	Colo.	500,000	500,000	1	*	.....	82,500 April 1891 .02¾
136	Silver Cord, s. L. G.	Colo.	4,500,000	450,000	10	.....	.....	265,000 April 1889 .10
137	Silver King, s.	Ariz.	10,000,000	100,000	10	130,000 Nov. 1890	.3.	1,950,000 July 1887 .25
138	Silver Mg. of L. V., s. L.	N. M.	500,000	500,000	1	*	.....	375,000 May 1891 .05
139	Small Hopes Con., s.	Colo.	5,000,000	250,000	20	*	.....	3,162,500 Oct. 1890 .10
140	Spring Valley, G.	Cal.	200,000	200,000	1	50,000 Oct. 1886	.25	50,000 Jan. 1881 .25
141	Standard, G. s.	Cal.	10,000,000	100,000	10	100,000 June 1890	.5.	3,395,000 Jan. 1890 .05
142	Stormont, s.	Utah	500,000	500,000	1	*	.....	155,000 Nov. 1881 .05
143	St. Joseph, L.	Mo.	1,500,000	150,000	10	*	.....	1,974,000 Dec. 1890 .02
144	Tamarack, C.	Mich.	1,250,000	50,000	25	52,00. Apr. 1887	3.00	2,090,000 Aug. 1891 4.00
145	Tombstone, G. s. L.	Ariz.	12,500,000	500,000	25	*	.....	1,250,000 April 1882 .10
146	United Verde, C.	Ariz.	3,000,000	300,000	10	*	.....	127,500 May. 1888 .10
147	Viola L., s. L.	Idaho	750,000	150,000	5	.....	.....	337,500 Nov. 1888 .37½
148	Ward Con., s.	Colo.	2,000,000	200,000	10	*	.....	20,000 Dec. 1889 .05
149	Woodside, s. L.	Utah.	100,000	100,000	10	.....	.....	25,000 Oct. 1888 .25
150	W. Y. O. D.	Cal.	30,000	15,000	2	11,250 Feb. 1889	.10	4,500 May. 1891 .10
151	Yankee Girl, s.	Colo.	2,500,000	250,000	10	*	.....	1,405,000 April 1891 .50
152	Yellow Jacket, G. s.	Nev.	12,000,000	120,000	100	5,508,00. Mar. 1888	.50	2,184,000 Aug. 1871 2.50
153	Young America, G.	Cal.	.....	.....	..	.....	.....	175,000 Jan 1884 .10

NON-DIVIDEND PAYING MINES.

	Name and Location of Company.	Capital Stock.	Shares. No.	Shares. Par	Assessments. Total levied.	Assessments. Date and am't of last.
1	Allegheny, s.	Colo.	$5,000,000	500,000	$10	*	.....
2	Alliance, s. G.	Utah.	100,000	100,000	1	$120,000	Feb. 1891 .20
3	Allouez, C.	Mich.	2,000,000	80,000	25	737,000	Jan. 1890 .70
4	Alpha Con., G. s.	Nev.	3,000,000	30,000	100	112,500	Sept. 1890 .25
5	Alta, s.	Nev.	10,080,000	100,800	100	3,359,800	Sept. 1890 .50
6	American Flag, s.	Colo.	1,250,000	125,000	10	300,000	June 1887 ....
7	Amity, s.	Colo.	250,000	250,000	1	.....	.....
8	Anchor s. L. G.	Utah.	3,000,000	150,000	20	410,000	June 1890 .20
9	Anglo-Montana, Lt.	Mont.	600,000	120,000	5	.....	.....
10	Astoria, G.	Cal.	200,000	100,000	2	.....	.....
11	Barcelona, G.	Nev.	5,000,000	200,000	25	*	.....
12	Bechtel Con., G.	Cal.	10,000,000	100,000	100	173,500	1883 .10
13	Belmont, G.	Cal.	500,000	500,000	1	*	.....
14	Belmont, s.	Nev.	5,000,000	50,000	100	735,000	April 1886 .10
15	Best & Belcher, s. G.	Nev.	10,080,000	100,800	100	2,279,275	Aug. 1890 .25
16	Black Oak, G.	Cal.	3,000,000	300,000	10	*	.....
17	Boston Con., G.	Cal.	10,000,000	100,000	100	170,000	Nov. 1883 .25
18	Bremen, s.	N. M.	5,000,000	500,000	10	*	.....
19	Brownlow, G. s.	Colo.	250,000	250,000	1	.....	.....
20	Brunswick, G.	Cal.	2,000,000	400,000	5	*	.....
21	Buckeye, s. L.	Mont.	1,000,000	500,000	2	.....	.....
22	Bullion, s. G.	Nev.	10,000,000	100,000	100	2,790,000	Dec. 1889 .25
23	Butte & Boston, C. s.	Mont.	5,000,000	200,000	..	.....	.25
24	Calaveras, G.	Cal.	500,000	500,000	1	*	.....
25	Carisa, s.	Wy.	500,000	100,000	5	*	.....
26	Carupano, G. S. L. C.	Ven.	200,000	100,000	2	*	.....
27	Cashier, G. s.	Colo.	500,000	250,000	2	*	.....
28	Cherokee, G.	Cal.	1,500,000	150,000	10	.....	.....
29	Chollar, s. G.	Nev.	11,200,000	112,000	100	1,540,000	Nov. 1889 .50
30	Cleveland, T.	Dak.	1,000,000	500,000	2	*	.....
31	Colchis, s. G.	Cal.	500,000	50,000	10	.....	.....
32	Colorado Silver	Colo.	1,625,000	325,000	5	.....	.....
33	Comstock Tun.	Nev.	10,000,000	100,000	100	35,000	Mar. 1887 .15
34	Con. Imperial, G. s.	Nev.	5,000,000	50,000	100	1,875,000	July. 1890 .05
35	Con. New York, s. G.	Nev.	5,000,000	100,000	50	70,000	Nov. 1890 .15
36	Con. Pacific, G.	Cal.	6,000,000	60,000	100	198,000	June 1890 .10
37	Con. Silver, s.	Mo.	2,500,000	250,000	10	.....	.....
38	Crescent, s. L.	Colo.	3,000,000	300,000	10	*	.....
39	Crocker, s.	Ariz.	10,000,000	100,000	100	150,000	June 1890 .15
40	Crowell, G.	N. C.	500,000	500,000	1	.....	.....
41	Dahlonega, G.	Ga.	250,000	250,000	1	*	.....
42	Dandy, s.	Colo.	5,000,000	500,000	10	.....	.....
43	Decatur, s.	Colo.	1,500,000	300,000	5	*	.....
44	Denver City, s.	Colo.	5,000,000	500,000	10	*	.....
45	Denver Gold, G.	Colo.	300,000	60,000	5	.....	.....
46	Dickens-Custer, s.	Idaho	2,100,000	420,000	5	*	.....
47	Durango, G.	Colo.	500,000	500,000	1	.....	.....
48	Eastern Dev. Co., Lt.	N. S.	1,500,000	150,000	10	990,000	Mar. 1886 1.00
49	El Cristo, G. s.	U.S.C.	1,000,000	500,000	2	.....	.....
50	El Dorado, G.	Cal.	1,000,000	250,000	4	*	.....
51	El Talento, G.	U.S.C.	1,000,000	500,000	2	.....	.....
52	Emmons, s. L.	Colo.	2,000,000	2,000,000	1	.....	.....
53	Empire, s.	Utah.	10,000,000	100,000	100	.....	.....
54	Eureka Tunnel, s. L.	Nev.	10,000,000	100,000	100	*	.....
55	Exchequer, s. G.	Nev.	10,000,000	100,000	100	865,000	July. 1890 .25
56	Found Treasure, G. s.	Nev.	10,000,000	100,000	100	81,500	May. 1890 .25
57	Gogebic I. Syn., I.	Wis.	5,600,000	200,000	25	.....	.....
58	Gold Cup, s.	Colo.	500,000	500,000	1	*	.....
59	Golden Era, s.	Mont.	2,000,000	200,000	10	*	.....
60	Gold Rock, G.	Cal.	1,000,000	500,000	2	*	.....
61	Goodshaw, G.	Cal.	10,000,000	100,000	100	*	.....
62	Grand Belt, C.	Tex.	12,000,000	120,000	100	.....	.....
63	Grand Duke	Colo.	800,000	80,000	10	.....	.....
64	Great Remance, G.	U.S.C.	1,000,000	500,000	2	*	.....
65	Gregory Con., G.	Mont.	3,000,000	300,000	10	.....	.....
66	Harlem M. & M. Co., G.	Cal.	1,000,000	200,000	5	.....	.....
67	Hartery Con., G.	Cal.	1,000,000	100,000	10	22,000	Oct. 1890 .05
68	Head Cent. & Tr., s. G.	Ariz.	10,000,000	100,000	100	.....	.....
69	Hector, G.	Cal.	1,500,000	300,000	5	45,000	Jan. 1889 .15
70	Highland, C.	Mich.	500,000	25,000	20	.....	.....
71	Holywood.	Cal.	200,000	100,000	2	.....	.....
72	Hortense, s.	Colo.	2,000,000	200,000	10	.....	.....
73	Huron, C.	Mich.	1,000,000	40,000	25	280,000	May. 1887 3.00
74	Iron, Gold & Silver, s.	Mont.	2,000,000	200,000	10	*	.....
75	Ironton, I.	Wis.	1,000,000	40,000	25	.....	.....
76	Iroquois, C.	Mich.	1,250,000	50,000	25	.....	.....
77	J. D. Reymert, s.	Ariz.	10,000,000	100,000	100	.....	.....
78	Julia Con., G. s.	Nev.	11,000,000	110,000	100	1,463,000	Jan. 1889 .10
79	Lacrosse, G.	Colo.	1,000,000	100,000	10	*	.....
80	Lee Basin, s.	Colo.	5,000,000	500,000	10	*	.....
81	Madeleine, G. s. L.	Colo.	750,000	750,000	1	*	.....
82	Mammoth Gold, G.	Ariz.	245,000	49,000	5	*	.....
83	Mayflower Gravel, G.	Cal.	1,000,000	100,000	10	585,000	Mar. 1890 .56
84	Medora, G.	Dak.	250,000	250,000	1	.....	.....
85	Merrimac Con., G. s.	Colo.	5,000,000	500,000	10	*	.....
86	Mexican, G. s.	Nev.	10,000,000	100,000	100	2,791,960	Oct. 1890 .25
87	Middle Bar, G.	Cal.	400,000	200,000	2	*	.....
88	Mike & Starr, s. C.	Colo.	1,000,000	200,000	5	*	.....
89	Milwaukee, s.	Mont.	500,000	500,000	1	12,500	May. 1891 .01
90	Monitor, G.	Colo.	100,000	1,000,000	1	*	.....
91	Mutual Mg. & Sm.	W'sh	100,000	100,000	1	*	.....
92	Native, C.	Mich.	1,000,000	40,000	25	.....	.....
93	Neath, G.	Colo.	1,000,000	100,000	10	.....	.....
94	Nevada Queen, s.	Nev.	10,000,000	100,000	100	200,000	Oct. 1889 .25
95	New Germany, G.	N. S.	100,000	100,000	1	*	.....
96	New Pittsburg, s. L.	Colo.	2,000,000	200,000	10	*	.....
97	N. Commonw'h, s.	Nev.	10,000,000	100,000	100	85,000	April 1890 .25
98	North Standard, G.	Cal.	10,000,000	100,000	100	20,000	Nov. ....
99	Noonday,	Cal.	600,000	60,000	10	208,000	Dec. 1881 .10
100	Oneida Chief, G.	Cal.	500,000	125,000	100	*	.....
101	Oriental & Miller, s.	Nev.	10,000,000	400,000	25	.....	.....
102	Osceola, G.	Nev.	5,000,000	500,000	10	.....	.....
103	Overman, G. s.	Nev.	11,520,000	115,200	100	3,832,800	Dec. 1889 .25
104	Peek, s.	Utah.	2,000,000	200,000	10	.....	.....
105	Peer, s.	Ariz.	10,000,000	100,000	100	165,000	Oct. 1890 .10
106	Peerless, s.	Ariz.	10,000,000	100,000	100	405,000	Oct. 1890 .15
107	Phœnix	Ariz.	500,000	500,000	1	*	.....
108	Phœnix Lead, s. L.	Colo.	100,000	100,000	1	*	.....
109	Pilgrim, G.	Cal.	600,000	300,000	2	*	.....
110	**Ploche M. & R., s. G. L.	Utah.	20,000,000	2,000,000	10	.....	.....
111	Potosi, s.	Nev.	11,200,000	112,000	100	1,573,000	Mar. 1890 .50
112	Proustite, s.	Idaho	250,000	250,000	1	*	.....
113	Puritan, s. G.	Colo.	1,500,000	150,000	10	*	.....
114	Quincy, C.	Colo.	3,000,000	300,000	10	.....	.....
115	Rappahannock, G. s.	¶Mex.	250,000	250,000	1	*	.....
116	Red Elephant, s.	Colo.	500,000	500,000	1	*

STOCK MARKET QUOTATIONS.

Baltimore, Md. Sept. 10.

COMPANY.	Bid.	Asked.
Atlantic Coal	$1.00@$1.05	$1.30
Balt. & N. C.	.03	....
Big Vein Coal	....	1.25
Conrad Hill	....	.10
Cons. Coal	.21	.30
Diamond Tunnel	....	....
George's Crk. C.	1.07	1.10@1.12
Lake Chrome	.10@.15	.30
Maryland & Charlotte	....	....
North State	....	....
Silver Valley	.65	.70

Birmingham, Ala. Sept. 9.

COMPANY.	Bid.	Asked
Ala. Coal & I. Co.	....	$100
Ala. Conn. C. & C. Co.	....	$23
Ala. R. Mill Co.	$100	$105
*Alice Furnace	$100	....
Anna Howe G. Mg. Co.	$⅜	$⅝
Bessemer Land	$29	$30
Bir. Mg. & Mfg.	....	$35
Cahaba Coal Mg. Co.	....	$61
Camille Gold Mg. Co.	$¾	$1
De Bardeleben C. & I. Co.	$81½	$91½
Decat. L. Imp.	$8¾	$9¼
Decatur Min. L.	....	$19
Ensley Land	$7½	$9
*Eureka	....	....
Florence L. & Mg. Co.	$15½	$18
Gadsen Land	$3⅜	$3⅝
Hecla Coal Co.	....	....
Hen. S. & M. Co.	$2¾	$4¼
Jagger-Towni'y C. & C. Co.	$8½	$10
Mag-Ellen	$100	....
Mary Lee C. & R. Co.	....	$25
Sheffield C. & I. Co.	$52½	$55
Sloss I. & S.	$18½	$21
†Sloss I. & S.	$85	$87
‡‡ Sloss I. & S.	$49	$52½
Ten. C. & I. Co.	$32½	$35
" pref.	$86	$88
Tuscaloosa C. I. & L. Co.	$23	$25
Vulcan C. & C. Co.	$5	$7½
Woodstock I. Co.	$28	$29

* Bonds. † First mortgage. ‡‡ Second mortgage. ** Without interest.

Helena, Mont.

(Special report by SAMUEL K. DAVIS.)

Prices highest and lowest for week ending Sept. 5, 1891:

	L.	H.
California (Castle), Mont.	.16	.17
Cumberland (Castle), Mont.	2.25	3.00
Champion (Ora Fino), Mont.	.20	.35
Combination(Phillipsb'g),Mont.	.65	.75
Cleveland & Anchor, Idaho.	.10	.15
Copper Bell (Cataract), Mont.	.12½	.15
Elizabeth (Phillipsburg), Mont.	2.45	2.75
Fourth of July, Wash.	.20	.25
Great Eastern (Castle), Mont.	.40	.50
Glengary (Butte), Mont.	1.25	1.50
Hiawatha (Cataract), Mont.	.05	.10
Iron Mountain(Missoula),Mont.	.70	.85
Judge (Castle), Mont.	.25	.30
Jumbo (Castle), Mont.	.40	.50
Lone Pine (Vipond), Mont.	4.00	5.00
Milwaukee (Butte), Mont.	.02	.05
O. R. & N. (Missoula), Mont.	.5½	.07
Poorman (Coeur d'Alene), Idaho	1.00	1.10
SouthernCross(DeerLodge),Mont.	.20	.25
Silver Arrow (Cataract), Mont.	.2½	.05
Silver Crown (Ora Fino), Mont.	.10	.15
West Cumberland(Castle),Mont.	2½	.07½
Wall Street (Elliston), Idaho.	.2½	.05
Yellowstone (Castle), Mont.	.20	.40
Mac (Unionville), Mont.	.15	.25
None Such (Unionville), Mont.	.15	.25
Helena & Victor, Mont.	2.10	3.00
Queen of the Hills(Neihart).	2.00	2.75
Florence'(Neihart), Mont.	.25	.30

Pittsburg, Pa. Sept. 10.

COMPANY.	B.	A.
Allegheny Gas Co.	$42.00	$43.50
Bridgewater Gas Co.	....	....
Chartiers Val. Gas.	8.75	9.50
Columbia Oil Co.	1.50	2.25
Consignee Mg. Co.	.23	.45
Consolidated Gas Co.	45.00	46.50
East End E. Light Co.	....	....
East End Gas Co	....	....
Forest Oil	....	....
Hazlewood Oil Co.	....	....
Hidalgo Mining	3.50	3.65
La Noria Mining	.30	.50
Luster Mg. Co.	11.13	12.25
Mansfield C. & C. Co.	....	....
Manuf'turers Gas Co.	24.00	26.00
Nat. Gas Co. of W. Va	58.00	60.00
N. Y. & Clev. Gas Coal	38.25	40.00
Ohio Valley Gas	....	20.00
Pennsylvania Gas	9.50	11.00
People' Natural Gas	12.00	....
People's N. G. & P. Co.	7.25	7.63
Philadelphia Co	11.88	12.00
Pine Run Gas Co	....	....
Pittsburg Gas	72.00	76.00
Silverton Mg. Co.	....	1.75
South Side Gas	....	....
Sterling Silver Mg. Co.	4.00	5.00
Tuna Oil Co.	53.50	54.75
Union Gas	....	....
Washington Oil Co.	....	91.50
W house A. B. Co.	108.25	111.00
W'house Brake Co	....	75.00
W'nouse E. Light	13.00	14.00
W'moreland & Camb.	....	....
Wheeling Gas	21.50	....

St. Louis. Sept. 9.

CLOSING PRICES.

COMPANY.	Bid.	Asked.
Adams, Colo.	$1.80	$2.00
American & Nettie.	.27½	.30
Aztec, N. Mex.	.05	.10
Bi-Metallic	35.00	36.00
Central Silver	.02	.04
Cleveland, Colo.	....	....
Elizabeth	2.10	2.15
Four Mile	....	.25
Gold King	....	....
Granite Mountain, Mont.	22.50	23.75
Hope	1.10	1.50
Ingram	....	....
I. X. L., Colo.	....	....
La Union	....	....
Little Albert	.01	.02
Major Budd, Mont.	....	....
Mexican Imp.	....	.09
Mickey Breen.	.52½	.57½
Montrose Placer, Colo.	.50	.52½
Mountain Key	.10	.20
Nellie	.04	.11
Old Colony	....	....
Pat Murphy, Colo.	.05	.05½
Puzzle	....	....
Richmond Hill	....	....
St. Louis & Aspen	.04½	.10
Samoa	....	....
Silver Age, Colo.	.75	.90
Small Hopes, Colo.	.70	.75
Tourtelotte	.25	....
West Granite, Mont.	....	....
Wire Patch	....	....
Yuma, Ariz.	.33¾	.36¼

Trust Receipts.

Sales at the New York Stock Exchange week ending Sept. 11:

	Sales.	Price—H.	Price—L.
American Cotton Oil	....	....	....
National Lead	14,413	17⅞	16½

* Trust receipts.

Trust Stocks. Sept. 11.

The following closing quotations are reported to-day by C. I. Hudson & Co., members of New York Stock Exchange:

CERTIFICATES.

Am. Cotton Oil, Com.	$25	@$26
" " " Pfd.	45¾@	47¾
Am. Sugar Refineries, Com.	88	@ 88½
" " " Pfd	92	@ 94½
National Cordage, Com.	93¾@	94
" " Pfd.	100	@101
Distillers' & Cattle Feeders'.	50¼@	50½
Linseed Oil	29	@ 33
Standard Oil	157½@	159
National Lead	16⅝@	16¾
W. U. Beef Co.	11½@	13½

Foreign Quotations.

London. Aug. 31.

COMPANY.	Highest.	Lowest.
Almada, Mex.	2s. 3d.	1s. 9d.
Amador, Cal.	4s.	3s. 6d.
American Belle, Colo.	10s. 6d.	9s. 6d.
Appalachian, N. C.	4½d.	3½d.
Canadian Phos., Can.	£½	£¼
Colorado, Colo.	2s. 6d.	2s.
Comstock, Utah.	....	....
Cons. Esmeralda, Nev.	1s. 9d.	1s. 3d.
Cordova	....	....
De Lamar, Idaho.	£1¼	£1 3-16
Denver Gold, Colo.	....	....
Dickens Custer, Idaho.	2s.	1s. 6d.
East Arevalo, Idaho.	2s.	1s.
El Callao, Venezuela.	£¾	£½
Elkhorn, Mont.	£1⅝	£1¼
Elmore, Idaho.	1s. 3d.	9d.
Emma, Utah.	1s. 9d.	1s. 3d.
Empire, Mont.	....	....
Flagstaff, Utah.	3s. 6d.	5s.
Garfield, Nev	9d.	3d.
Golden Leaf, Mont.	2s. 6d.	2s. 3d.
Jay Hawk, Mont.	1s.	6d.
Josephine, Cal.	1s.	6d.
Kohinoor, Colo.	....	....
La Luz, Mex.	2s. 3d.	1s. 9d.
La Valera, Mex.	3s. 6d.	2s. 6d.
Maid of Erin, Colo.	£1⅝	£1¼
Mammoth Gold, Ariz.	2s. 6d.	2s.
Montana, Mont.	11s.	10s.
New California, Colo.	3s. 3d.	2s. 9d.
New Consolidated	1s.	6d.
New Eberhardt, Nev.	1s. 3d.	9d.
Newfoundland, N. F.	....	....
N. Gold Hill, N. C.	1s.	6d.
New Guston, Colo.	£3½	£2¾
New Hoover Hill, N.C.	1s.	6d.
New La Platte, Colo.	1s. 3d.	1s.
New Russell, N. C.	9d.	6d.
New Viola, Idaho	1s.	6d.
Old Lout, Colo	£⅜	£⅛
Palmarejo, Mex.	10s. 6d.	10s.
Parker Gold, N. C.	1s.	....
Pinos Altos, Mex.	4s. 6d.	4s.
Pittsburg Cons., Nev	4s. 3d.	....
Richmond Con., Nev.	£1	£¾
Ruby, Nev.	6d.	3d.
Sam Christian, N. C.	1s. 3d.	9d.
Sierra Buttes, Cal.	5s. 6d.	4s. 6d.
" Plumas Eur., Cal.	£⅝	£⅛
United Mexican, Mex.	£5-16	£3-16
U. S. Placer, Colo.	9d.	3d.
West Argentine, Colo.	1s. 6d.	1s.
Yankee Girl, Colo.	18s.	17s. 6d.

Paris. Aug. 31.

	Francs.
Belmez, Spain	800.00
Callao, Venez	10.50
Callao Bis., Venez	15.00
East Oregon, Ore	4.00
Forest Hill Divide, Cal.	80.00
Golden River, Cal.	130.00
" " parts	30.00
Lexington, Mont	95.00
" " parts	2.50
Rio Tinto, Spain	583.12
Tharsis, Spain	163.75

CURRENT PRICES.

Those quotations are for wholesale lots in New York.

CHEMICALS AND MINERALS.

Acid—Acetic, No. 8, pure, 1,040, ℔ lb...05
Commercial, in bbls. and cbys. 01¼@.02¼
Carbonic, liquefied, ℔ lb. .30
Chromic, ch pure. $1.00
for batteries .50
Hydrobromic, dilute, U. S. P. 35
Hydrocyanic, U. S. P. .55
Hydrofluoric .30
Alcohol—95%, ℔ gall. 2.50
Absolute 4.00
Ammoniated 3.00
Alum—Lump, ℔ lb. 1¾
Ground, ℔ lb. 1⅞
Powdered 4½@5
Lump ℔ ton, Liverpool £5
Sulphate of Alumina, ℔ lb. 1¾@3
Alumina Chloride—Pure, ℔ lb... 1.25
Amalgamating solution, ℔ lb. .60
Ammonia—Sul., in bbl. lots, ℔ lb 3 1-16
Carb, ℔ lb. .14
Muriate, white, in bbls., ℔ lb. .08½
Ammoniates—Fish guano, dried. $21
wet 8.50@ 9.50
Acid phosphate, 14% per cent. 72½@ 80
Aqua Ammonia—(in cbys) 18° ℔ lb .03¾
20°, ℔ lb .04¾
26°, ℔ lb .07½
Antimony—Oxymur, ℔ lb. .04¾
Argols—Red, powdered, ℔ lb. .15
Arsenic—White, powdered ℔ lb. 3@3¼
Red ℔ lb. 5@5½
White at Plymouth, ℔ ton £12 2 6
Asbestos—Am., ℔ ton. $50@$300
Italian, ℔ ton. c. i. f. L'pool £18@£60
Ashes—Pot, 1st sorts, ℔ lb. 5½@6½
Pearl 6¼@6½
Asphaltum—P. ton. 13.00
Prime Cuban, ℔ lb. 4½@5½c.
Hard Cuban, P ton $28.00
Trinidad, refined, ℔ ton $30.00
Egyptian 8@9
Baryta—Carbonate, pure, ℔ lb. .45
Carbonate, commercial, ℔ lb. 5@.10
Chlorate, crystal, ℔ lb. .75
Chloride, commercial, ℔ lb. 5@.10
pure, ℔ lb. .16
Iodide, ℔ oz. .40
Nitrate, powdered, ℔ lb. .15
Sulph., Am. prime white 21@23
Sulph., foreign, floated, ℔ ton. 21.5@23.50
Sulph., off color, ℔ ton. 11.50@14.00
Carb., lump, f. o. b. L'pool, ton £6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " 3 15 0
Beeswax—Refined, ℔ lb. .32
Benzole—℔ gall. 1.50
Bichromate of Potash—Scotch. 10@12
American 10@12
Bichromate of Soda. 8½@11½
Borax—Refined, ℔ lb., by bbl. .11
Concentrated 8¼@8½
Refined " Liverpool ℔ ton £29
Bromine—℔ lb. .40
Cadmium Bromide—℔ lb. 2.00
Iodide, ℔ lb. 5.50
Chalk—℔ ton. 1.75
Precipitated, ℔ lb. 5@6
China Clay—English, ℔ ton. 13½@21.00
Southern, ℔ ton 13.50
Chlorine Water—℔ lb. .10
Chrome Yellow—℔ lb. 10@25
Chromalum—Pure, ℔ lb. .40
Commercial, ℔ lb. .12
Cobalt—Oxide, ℔ lb. 2.50@2.90
Copper—Sulph. English Wks. ton £29@£21
Vitriol (blue), ordinary .3¼
" " extra .04
Nitrate, ℔ lb. .40
Copperas—Common, ℔ 100 lbs. .85
Best, ℔ 100 lbs. .85@1.00
Liverpool, ℔ ton, in casks £2
Corundum—Powdered, ℔ lb. 4½@.9
Flour, ℔ lb. .3
Cream of Tartar—Am. 99%. 24½
Powdered, 99 p. c. 25
Cryolite—Powdered, ℔ lb., bbl. lots .08
Emery—Grain, ℔ lb. (℔ kg.). 4½@5
Flour, ℔ lb. 2½@10
Epsom Salt—℔ lb. 1½
Feldspar—Ground, ℔ ton 20.00
Fluorspar—Powdered, No. 1, ℔ ton. 30 00
Fuller's Earth—Lump, ℔ bbl. 90@95
Fusel Oil—℔ gall. .60
Purified, ℔ gall. .75
Gelatine—Cox's, doz 2.00
Coignet's Gold Label, ℔ lb. 1.00
Silver Label, ℔ lb. .88
Heinrich's Gold Label, ℔ lb. .75
for emulsion, ℔ lb. 1.00
Nelson's No. 1, ℔ lb. 1.10
No. 1, Shreds, ℔ lb. 1 25
No. 3, ℔ lb. .75
Glauber's Salt—in bbls., ℔ lb. .5
Glass—Ground, ℔ lb. .10
Glue—Brown, ℔ lb. .20
White, ℔ lb. .30
Glycerine—Concent., ch. pure, ℔ lb. 25
Gold—Chloride, pure, crystals, ℔ oz. 12.00
pure, 15 gr., c. v., ℔ doz. 5 40
liquid, 15 gr., g. s. v., ℔ doz. 5.50
Chloride and sodium, ℔ oz. 6.00
15 gr., c. v., ℔ doz. 2.88
Oxide, ℔ oz. 27 25
Gypsum—Calcined, ℔ bbl. 1.25@1.50
Iodine—Resublimed. 3.35@4.00
Iron—Nitrate, 40°, ℔ lb. 1½
47°, ℔ lb. 2½
Kaolin—*See China Clay.*
Lead—Red, ℔ lb. 6¾@7¼
White, American, in oil, ℔ lb. 6½@7¼
White, English, ℔ lb. 8¾@9
Acetate, or sugar of, white. 12@13
Nitrate 9@10
Lime Acetate—Amer. Brown 1 10@1 20
" Gray 2.00@2.15
Litharge—Powdered, ℔ lb. 6½@7¼
English flake, ℔ lb. 9@9½
Magnesite—Greek, ℔ ton 20.00
Manganese—Crude, per unit. 23@28
Oxide, ground, per lb. 2½@6¼
Marble Dust—℔ bbl. 1.25
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb. .84
Powdered, ℔ lb. .94
Metallic Paint—Brown per ton. $20@25
Red. $20@25
Mineral Wool—Ordinary slag. 1½
Ordinary rock. 2½
Mica—In sheets according to size, 1st quality, ℔ lb. 25@$6.00
Naphtha—Black. ....
Nitre Cake—℔ ton. 10.00
Ochre—Rochelle. 1.35@$1.0
Washed Nat Oxford, Lump. 6½@6¾
Washed Nat Oxford, Powder. 7@7½
Golden. 3¾@4
Domestic. ¾@1½
Oils, Mineral
Cylinder, light filtered 15@20
Dark filtered 11@15
Extra cold test 18@20
Dark steam refined 10@18
Phosphorus—℔ lb. 55@60
Precip., red .88
white .93
Plumbago—Ceylon, ℔ lb. 4@5
American, ℔ lb. 5@7
Potash—Kieserite. $9@$10
Potassium—Cyanide, ℔ lb., C. P. .70
67% .45
50%. .40
Bromide, ℔ lb. .33
Chlorate, English, ℔ lb 11@14
Chlorate, powdered. 13@14
Carb, ℔ lb., by casks, 82%. 5½
Caustic, ℔ lb., pure slick. 35@40
Iodide. 2,65@2.70
Nitrate, refined, ℔ lb. 6@8
Bichromate, ℔ lb 10½@11
Yellow Prussiate. 32½@35
Red Prussiate. 42@45
Pumice Stone—Select lumps, lb. .04
Original cks., ℔ lb 1¾@2
Powdered, pure, ℔ lb. 2 @2½
Pyrites—Non-cupreous, p. units. 12@.15
Quartz—Ground, ℔ ton. 14.00@16.00
Rotten Stone—Powdered, ℔ lb. 3½
Lump, ℔ lb 5½@15
Original cks 4½@5½
Rubbing stone. 7
Sal Ammoniac—in bbls., ℔ lb. 10¼
Salt—Liverpool, ground, ℔ sack 75@80
Turk's Island, ℔ bush. 25@28
Salt Cake—℔ ton. 10 00
Saltpeter—Crude, ℔ lb. 2½@3
Soda—Prussiate. 17½@18
Phosphate 7@18
Stannate 8@15
Strontium—Nitrate, ℔ lb. 9½@10
Sulphur—Roll, ℔ lb. .02½
Flour, ℔ lb. .02¾
Sylvinit, 23@27%, S. O. P., per unit. 40@42½
Talc—Ground French, ℔ lb. 1¼@1½
Terra Alba—French. 90@1.00
English. 75@80
American, No. 1. —@—
American, No. 2. 40@50
Domestic, ℔ ton. $18@$20
c. i. f. Liverpool, ℔ ton. £4 5
Tin—Crystals, in kegs or bbls. 1
feathered or flossed. 25
Muriate, single. 7
Double or strong, 51° B. 9
Oxy. or nitro. 10
Bar. 25
Vermillion—Imp. English. .90 @ .95
Am. quicksilver, bulk. .67 @—
Am. quicksilver, bags. .68 @ .71
Chinese. .95 @1 00
Trieste. 90 @ .95
American. 11½@ .12
Artificial 8 @ .35
Zinc—Am., Dry, ℔ lb. 4½
Antwerp, Red Seal, ℔ lb. 7½
Paris, Red Seal, ℔ lb 8½
Muriate solution 6
Sulphate crystals, in bbls., ℔ lb. 3¾
* Spot.

THE RARER METALS.

Aluminum—Pure, per lb. $ .50
Arsenic—(Metallic), per lb. .40
Barium—(Metallic), per gram. 4.00
Bismuth—(Metallic), per lb. 2.40
Cadmium—(Metallic), per lb. 1.00
Calcium—(Metallic), per gram. 10.00
Cerium—(Metallic), per gram. 7.50
Chromium—(Metallic), per gram. 1 00
Cobalt—(Metallic), per lb. 6.00
Didymium—(Metallic), per gram. 9.00
Erbium—(Metallic), per gram. 7.50
Gallium—Metallic), per gram. 140.00
Glucinum—(Metallic, per gram. 12.00
Indium—(Metallic), per gram. 9.00
Iridium—(Metallic), per oz. 7.00
Lanthanum—(Metallic), per gr. 10.00
Lithium—(Metallic), per gram. 10.00
Magnesium (Powdered), per lb. 4.00
Manganese—(Metallic), per lb. 1.10
Chem. pure, per oz. 10.00
Molybdenum—(Metallic), per gm .50
Niobium—(Metallic), ger gram. 5.00
Osmium—(Metallic), per oz. 65.00
Palladium—(Metallic), per oz. 35 00
Platinum—(Metallic), per oz. 16.50@20.00
Potassium—(Metallic), per lb. 28.00
Rhodium—(Metallic), per gram. 5.00
Ruthenium—(Metallic), per gm. 5.50
Rubidium—(Metallic), per gram. 2 00
Selenium—(Metallic), per oz. 1.80
Sodium—(Metallic), per lb. 2.50
Strontium—(Metallic), per gm. .60
Tantallum (Metallic), per gram. 9.00
Telurium—(Metallic), per lb. 5.00
Thallium—(Metallic), per gram. .25
Titanium—(Metallic), per gram. 2.25
Thorium—(Metallic), per gram. 17.00
Tungsten—(Metallic), per lb. 1.00
Uranium—(Oxide), per lb. 5.00
Metallic, per gm. .20
Vanadium—(Metallic), per gm. 22.00
Yttrium—(Metallic), per gram. 9.00
Zirconium—(Metallic), per oz. 65.00